

Hawai'i State Environmental Council



2011 Annual Report on the Environment

January 31, 2012

Cover Photo Credits:

Top left – ‘Awapuhi ginger in Kamakou Rainforest, Moloka‘i. Photo courtesy of Malia Akutagawa.

Top right – Native ‘iwi bird of the Hawaiian forest, one of 17 surviving Hawaiian Honeycreepers. Photo courtesy of Jack Jeffrey.

Bottom – Keawanui Fishpond, Moloka‘i. Photo courtesy of Malia Akutagawa.

A Message from the Director of the Office of Environmental Quality Control and the Environmental Council Chair

We are pleased to present the 2011 State of Hawai'i Annual Report on the Environment, which provides a snapshot of the issues, challenges, and accomplishments of the Office of Environmental Quality Control (OEQC) and Environmental Council (EC) in monitoring the progress of state, county, and federal agencies in achieving the State's environmental goals and policies.

The protection of Hawai'i's environment is critical for sustaining Hawai'i for future generations.



North shore Molokai. Photo courtesy of Malia Akutagawa.

This 2011 Annual Report on the Environment presents key environmental indicators, and includes highlights of various initiatives supporting the environment and improving the workings of Hawai'i Revised Statutes (HRS) Chapter 343 that the EC and OEQC intend to move forward during the upcoming year.

We welcome and encourage your involvement in this ongoing effort. You may read more about the work of the OEQC and the EC at www.hawaii.gov/health/environmental/oeqc.

Gary Hooser, Director
Office of Environmental Quality Control

Mary Steiner, Chair
Chair, State Environmental Council

2011 ANNUAL REPORT ON THE ENVIRONMENT

Every aspect of our lives is intertwined with the natural resources of our islands.

Our survival is literally dependent on proper stewardship.

A strong economy is not one based on unfettered consumption of our natural resources, but instead one that is sustainable over time.

*- Governor Neil Abercrombie,
A New Day in Hawai'i, August 2010*

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Purpose of the Annual Report

The Environmental Council (EC) together with the Office of Environmental Quality Control (OEQC) were created in 1970 and 1971 and codified under Hawai'i Revised Statutes (HRS) Chapter 341. The purpose of Chapter 341 *“is to stimulate, expand and coordinate efforts to determine and maintain the optimum quality of the environment of the State.”*

This annual report is provided in compliance with HRS Chapter 341-6: *“The council shall monitor the progress of state, county, and federal agencies in achieving the State’s environmental goals and policies and with the assistance of the director shall make an annual report with recommendations for improvement to the governor, the legislature, and the public no later than January 31, of each year.”*

The Environmental Council

The Environmental Council is responsible under the law for representing the public on issues concerning *“ecology and environmental quality.”* The EC consists of 15 dedicated and conscientious volunteers who are appointed by the Governor and confirmed by the Hawai'i State Legislature. Membership on the Council is *“a broad and balanced representation of educational, business, and environmentally pertinent disciplines and professions, such as the natural and social sciences, the humanities, architecture, engineering, environmental consulting, public health, and planning; educational and research institutions with environmental competence; agriculture, real estate, visitor industry, construction, media, and voluntary community and environmental groups.”* (HRS 341-3 (c)) The EC holds HRS Chapter 343 rule-making powers. It also reviews and provides concurrence on agency exemption lists. The EC is charged with communicating to the Governor via the OEQC Director environmental concerns as well as policy and legislative recommendations.

Current Environmental Council Members



Mary Steiner has been Chief Executive Officer of The Outdoor Circle, Hawai'i's oldest environmental non-profit, for 20 years. The Outdoor Circle works to preserve the scenic environment for future generations. Mary is in the first year of her second term on the Environmental Council. She served as Chair of the Exemption Committee for 2 years. The Council is fortunate to lean on Mary's leadership as she is serving admirably as the Chair since September 2010. In Mary's own words, *“My goal is to demystify the environmental review process. I believe that if advocates, members of the community, developers, project proponents, and*

government agencies were educated about how the system works, the result would be better protection of our environment. I am excited about the future of the Environmental Council. I believe that with updated agency exemption lists and updated rules the system will be enhanced and the end result will be greater clarity and a better understanding for all.”

Gary L. Hooser is Director of the Office of Environmental Quality Control and member of the Environmental Council. Prior to his appointment as OEQC Director, Gary served for 8 years in the Hawai‘i State Senate with four of those years as Majority Leader. His family home is on Kaua‘i where he served on the Kaua‘i County Council and owned and operated both a real estate business and a small publishing company. Gary’s interest in environmental issues stems from living in the rural community of Kaua‘i for the past 30 years, “I know from first-hand experience the importance of good land use planning and the benefits gained from strong environmental protection measures.”



Marjorie Ziegler is one of the Council’s newest members. She grew up and still lives in Kāne‘ohe, O‘ahu. She has worked extensively in the non-profit, environmental sector for the past 24 years. Currently, Marjorie is the Executive Director of the Conservation Council for Hawai‘i – a membership organization dedicated to protecting native Hawaiian plants, animals, and ecosystems for future generations. On her commitment to serve on the EC, Marjorie states that she wants to do her part in ensuring “the Council is active, effective, and supported in terms of logistics, staff, and funding.” She is keen on helping the EC and OEQC meet the State’s environmental goals and ensuring an effective and open environmental review process.



Charles “Chuck” A. Prentiss, Ph.D. is an urban planner, a former city manager, and a retired city planner with the City and County of Honolulu. He holds degrees in economics, city planning, and government management. He is Executive Secretary of the Honolulu City Planning Commission, a Vietnam veteran pilot, and a retired Lieutenant Colonel of the Hawai‘i National Guard. Chuck is also President of Hawai‘i’s Thousand Friends and Chairperson of the Kailua Neighborhood Board. Chuck’s professional experiences motivate him “to promote environmental protection.” He possesses “a strong belief in the necessity for citizen participation in government.” For him, “Participation aids in government openness, and honesty, and provides a countervailing force to special interests in government decisions. In essence, “The environment is our economy.”





Scott Glenn is an environmental planner at TEC, Inc. He received his Master's in Urban and Regional Planning from the University of Hawai'i in 2009, where he was a graduate assistant for the statewide study of Hawai'i's environmental review process. He specializes in environmental review and climate change adaptation planning and lends his expertise as Chair of the Environmental Council's Rules Committee. Scott seeks to modernize Hawai'i's environmental review process to incorporate innovations in information technology and address contemporary environmental concerns.

Malia Akutagawa, Esq. is President and Founder of Sust'ainable Moloka'i, a non-profit focusing on creating an environmentally, economically, and culturally sustainable island that serves as a model for Hawai'i and the world. She is the Director of the Moloka'i Rural Development Project, which provides workforce training and supports rural economic development initiatives in collaboration with the University of Hawai'i, and public, private, and non-profit partners. Malia worked as a reviewer with the Environmental Center and as an attorney with the Native Hawaiian Legal Corporation. She contributes to the EC through her legal expertise and background as a Hawaiian cultural practitioner with a strong affinity to the 'āina.



Pete Cooper is shaped by his learning experiences within both the public and private school systems in Hawai'i. Pete has a background in real estate development (past President of the Hawaii Developers Council) and is an environmentally concerned businessman who "wants to be part of the solution." He established Cooper & Cooper, a real estate development firm dedicated to sustainability. He also co-founded Sun Energy Solutions (later purchased by SolarCity) to add to his vision of sustainability by providing usable spaces that create energy. Pete believes that a complete absence of development will "not help our next generation of keiki that need homes." Conversely, "badly thought out development does not help the next generation of keiki that need to be able to connect to the 'āina."

Robert Inouye has an educational background in chemical engineering. He retired as an environmental coordinator for the Pacific Missile Range Facility on Kaua'i. He supervised environmental engineering and environmental protection personnel and provided oversight for the reduction of hazardous waste through recycling, segregation, and reclassification. Robert



brings to the Environmental Council years of experience in environmental compliance.



Shannon Mears, Esq. was born and raised in Burlington, Iowa, and is a proud resident of Hawai'i for over 10 years. When he first arrived in Hawai'i, he was “blown away by the natural beauty of the land and sea and the warmth of the people.” Shannon is a graduate of Brigham Young University - Hawai'i and the University of Hawai'i William S. Richardson School of Law. Currently, Shannon serves as Chair of the Legislative Committee of the Environmental Council. On the leadership role he has taken Shannon states, “I feel it is my privilege and responsibility to first and foremost protect the environmental health of this beautiful state while ensuring the economic ability of its people to remain here into perpetuity.”

Iris Terashima is a licensed engineer and principal of ITES, a Honolulu-based consulting firm specializing in environmental risk management. She is a “local girl” (graduate of Waialua High School), with degrees in Chemical Engineering and Information Systems, and has worked as an environmental engineer in Hawai'i and the Pacific for over 20 years. Iris is Chair of the Annual Report Committee. She shares an enthusiasm for service on the Environmental Council and wants to do her “share and ‘pull with the team’ to protect Hawai'i's environment for future generations.”



David Atkin has been an environmental planner for over 30 years, the last 20 of which have been in Hawai'i. David sees the State's environmental review process as essential, but is concerned that, “its implementation doesn't match our current circumstances.” David posits that we may well be “living at the start of a new geological period, the ‘Anthropocene,’” marked by “tremendous change wherein the consequences of past environmental practices will be increasingly evident.” David is Chair of the Environmental Council's Exemption Committee. He sees his role as helping the Council to focus on substantive issues regarding the environment to “achieve a more responsive system.”

James Sullivan is a mechanical engineer with a concentration in heating, ventilating, air conditioning, and solar energy systems. He also focused on environmental engineering aspects particularly due to his interest in solar energy. James has worked in the construction industry to build waste water treatment plants and pumping stations throughout Hawai'i. Most recently, he worked on a number of green building projects for Army and Air Force military family housing. His focus has been on renewable energy, green building practices, and environmental restoration; however, James' passion is for the 'āina. James' service to the Environmental Council stems from his time on Kaua'i when he was made hānai by the Hawaiian community there. During that time he learned some of the language, and immersed himself in Hawaiian cultural values and philosophy. James feels very connected to the 'āina and has a deep sense of kuleana to care for the land.



John Richards was born and raised on a cattle ranch on the Big Island of Hawai'i. He has been intimately involved with agriculture and natural resource management for most of his life. John has lived in different parts of the world for both schooling and military service which lent him a unique perspective on sustainable land and resources use. As the sixth generation of his family in Hawai'i, John has very deep roots and a desire to see the islands thrive. For him, "The Council offers the opportunity to help the systems that protect the islands. A careful balance must be found to ensure business has what it needs to function well, while protecting the spirit, lands and the people of Hawai'i. Laws and their application can either make us greater or limit our potential. The council has the opportunity to facilitate the former."



The Office of Environmental Quality Control



Governor Neil Abercrombie joins OEQC Director Gary Hooser, interns, and staff at a strategic planning session. (Left to right) Jason Allison, Hawai'i Pacific University Intern; Stacey Chaussoy, Chaminade University Intern; Alcelia Domingo, OEQC Secretary; Governor Neil Abercrombie; Robyn Petterson, University of Hawai'i Intern; and OEQC Director Gary Hooser.

The Office of Environmental Quality Control (OEQC) was established in 1970 to help stimulate, expand and coordinate efforts to maintain the optimum quality of the state's environment. The OEQC implements HRS Chapter 343, which governs the environmental review process. Office planners review hundreds of environmental disclosure documents and respond to thousands of inquiries each year from both the public and the private sectors. Twice a month, the OEQC publishes *The Environmental Notice* which announces the availability of Environmental Assessments (EAs) and Environmental Impact Statements (EISs) undergoing public review. The OEQC staff also provides support to the Environmental Council regarding amendments to the administrative rules, exemption lists, and the Council's annual report. The OEQC is attached to the Hawai'i Department of Health for administrative purposes.

The OEQC Director provides advice and assistance to private industry, government agencies, and community groups regarding HRS Chapter 343. The agency is also empowered by law to conduct research; develop legislative initiatives; do public outreach; and recommend programs for the long-range implementation of environmental quality control.

The Director is an ex-officio voting member of the Advisory Committee on Plants and Animals with the Hawai'i Department of Agriculture, the Hawai'i State Emergency Response Commission with the Hawai'i Department of Health, and the Environmental Council. At the request of the Governor, the Director of the OEQC may also be empowered to coordinate and direct state agencies in matters concerning environmental quality.



OEQC staff (left to right) Leslie Segundo, Environmental Health Specialist, and Herman Tuiolosega, Planner.

The University of Hawai'i Environmental Center



(Left to right) Dr. Chittaranjan Ray, Interim Director of the University of Hawai'i Water Resources Research Center and Environmental Center; Assistant Specialist John Cusick; Secretary Charlotte Kato; and Specialist David Penn.

Established in 1970, the Environmental Center of the University of Hawai'i at Mānoa advances environmental management through education, research, and service. The Environmental Center is a unit of the University of Hawai'i Water Resources Research Center. The Environmental Center provides both informal and formal academic training in Environmental Studies at the University of Hawai'i at Mānoa. Students serve as research assistants on programs developed under extramural funding contracts. Student interns experience direct, practical, hands-on opportunities in environmental management and review which prepare them for employment at all levels of government and throughout the environmental industry. The Center conducts environmental research that is particularly relevant to the State of Hawai'i. It organizes cooperative research activities by working with multidisciplinary teams in its research work. The Center researches and develops new methods to coordinate environmental management, especially in the use of technology and computer-based environmental information systems. The Center utilizes a university-based, system-wide, interdisciplinary "network" of professional and technical experts to gather their professional advice in the review of various Environmental Assessments and Environmental Impact Statements and proposed environmental legislation. Through this network, the Center is able to provide comprehensive technical and academic information on specific environmental issues of concern and relay written analyses to governmental agencies and organizations in need of the information for policy and decision-making.

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Chapter 343 – HRS Two Key Elements of the Process: Triggers and Exemptions

Summary of Environmental Review Triggers

An Environmental Assessment (EA) is generally required for proposed projects or activities that meet the “triggers” identified in Hawai‘i Revised Statutes (HRS) Chapter 343-5. Should an EA conclude that there are likely to significant environmental impacts then a full Environmental Impact Statement may be required. The triggers include actions by agencies or applicants that involve:

- ❖ State or County Funds/State or County Lands
- ❖ Conservation Lands
- ❖ Registered Historic Sites
- ❖ The Shoreline Setback Area (exact distance varies by County)
- ❖ Waikīkī Lands
- ❖ Rezoning of Conservation District Lands
- ❖ Private sector initiated amendments to County General Plan
- ❖ Construction of Helicopter Facilities
- ❖ Construction of Power Plants, Landfills, Wastewater Plants, Waste to Energy Facilities or Oil Refineries

Exempt Activities

Certain activities may be declared exempt from environmental review, especially those considered by state and county agencies as minor or routine. There are 11 classes of exempt actions under the Hawai‘i Administrative Rules (HAR) Section 11-200-08 and one exempt class of action identified under HRS 183B-2. The following are exempt classes of actions:

- ❖ Operation, repairs, or maintenance of existing structures, equipment, or topographical features
- ❖ Replacement or reconstruction of existing structures and facilities
- ❖ Construction and location of single, new, small facilities or structures

- ❖ Minor alterations in the conditions of land, water, or vegetation
- ❖ Basic data collection, research and experimental management
- ❖ Construction or placement of minor structures accessory to existing facilities



- ❖ Interior alterations
- ❖ Demolition of structures except historic sites
- ❖ Zoning variances except shoreline setback variances
- ❖ Continuing administrative activities such as purchasing supplies
- ❖ Acquisition of land and existing structures for the provision of affordable housing
- ❖ Reconstruction, restoration, repair, or use of any Hawaiian fishpond

Final Note:

Exemptions may not be permitted when the cumulative impact is significant or if the action/activity occurs in a particularly sensitive environment



A manu o Kū (white or fairy tern) chick and mature adult in flight. The manu o Kū is a native threatened bird that feeds at sea and returns to land at night to rest. The birds were important to Hawaiian and Polynesian traditional navigation. Photos courtesy of Forest and Kim Starr.

The Environmental Notice and Other Resources for Accessing Information

EAs and EISs are prepared and circulated for public review. The OEQC has an online library of EAs and EISs that are searchable by Title of Document and by Island Maps. EAs and EISs are also available at public libraries across the State. Documents from the 1970s may be on OEQC's online library or at the State Archives located on the grounds of 'Iolani Palace. Please check the Archives directly for availability.

The Environmental Notice announces the availability of EAs and EISs for public review. It is published on the 8th and 23rd of each month on OEQC's website. Federal consistency reviews, special management area permits, shoreline certifications, federal EAs and EISs, habitat conservation plans, safe harbor agreements, incidental take licenses per the federal endangered species act, and other notices also are published for public review. Go to the current issue to view the most recent documents under public review. Previous issues of *The Environmental Notice* are also available.

To be placed on the OEQC email list and receive notification when the current edition of *The Environmental Notice* is posted, send OEQC an email at: oeqc@doh.hawaii.gov. Other useful links include the Environmental Assessment Preparation Toolkit. This toolkit contains the OEQC publication form, deadline calendar, checklists, sample cover letters, distribution lists, cultural assessment provider lists, and a map of the island districts. Visit the OEQC website at: <http://hawaii.gov/health/environmental/environmental/oeqc/index.html>



A threatened honu (Hawaiian green sea turtle) gliding gracefully over the reef. Photo courtesy of Anita Wintner.

A New Day In Hawai'i

Governor Neil Abercrombie has set forth an ambitious plan titled “A New Day In Hawai'i” and has called upon the people of our State, government employee, and private citizen alike, to embrace and move forward a positive agenda for the future.

“Every aspect of our lives is intertwined with the natural resources of our islands. Our survival is literally dependent on proper stewardship. A strong economy is not one based on unfettered consumption of our natural resources, but instead one that is sustainable over time.”¹

This annual report summarizes the significant OEQC and EC accomplishments made during this past year, reviews key environmental indicators, and includes highlights of various initiatives supporting the environment and improving the workings of HRS Chapter 343 that the EC and OEQC intend to move forward during the upcoming year.

With this information, it is our hope to inspire greater citizen engagement, inter-agency cooperation, and conscientious leadership in government on behalf of Hawai'i's precious natural and cultural resources. To learn more about the work of the Environmental Council, Office of Environmental Quality Control, and University of Hawai'i Environmental Center, visit us at: <http://hawaii.gov/health/environmental/environmental/oeqc/index.html>. We welcome and encourage your involvement in our collective efforts to care for our environment, that it may sustain Hawaii for future generations.

¹ Abercrombie, Neil. “A New Day In Hawai'i: A Comprehensive Plan To Invest In Education And Rebuild Our Economy, To Sustain Our Hawai'i For Future Generations, To Restore Public Confidence.” August 18, 2010.

OEQC Director's Report

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by Gary Hooser, Director of the Office of Environmental Quality Control

The Office of Environmental Quality Control (OEQC), working together with its partner the Environmental Council, has enjoyed an exceptionally productive year and attained numerous achievement milestones.

The OEQC staff consists of five funded full-time positions: Director Gary Hooser, Planner V Herman Tuiolosega, Planner III (vacant position), Environmental Health Specialist Leslie Segundo, and Secretary Alice Domingo. In addition, during much of the year the office was also supported by interns Stacey Chaussoy and Robin Petterson.

Duties of the OEQC - HRS Chapter 341 states: "The office shall perform its duties under chapter 343 and shall serve the governor in an advisory capacity on all matters relating to environmental quality control." In addition, the OEQC serves the Environmental Council in a support role with the OEQC Director sitting on the Council as an ex officio member.

Specific and exceptional milestone achievements that have occurred during the past 12 months include:

- 1) In response to the pre-existing conditions involving extremely low morale, a disconnected relationship between the OEQC and the EC, and a lack of clear goals and objectives for both entities, the OEQC sponsored a staff and Environmental Council all-day retreat focused on team building and the development of a goal driven strategic plan that addressed five key areas of responsibility – Exemptions, Rulemaking, Annual Report, HRS Chapter 343, and Legislation.
- 2) The OEQC played a pivotal role in the reconstitution and reinvigoration of the Environmental Council which had struggled without adequate support in the preceding year.
- 3) The Chapter 343 Guidebook was thoroughly reviewed, updated, and rewritten. This essential guide to the EA/EIS process which had not been reviewed, updated or even available for use since 2004, is now available in both print and online format.
- 4) The OEQC initiated long overdue and much needed "education and outreach" training sessions, attended by over 600 planning professionals, agency staff and members of the public. Training sessions were held statewide and provided valuable face-to-face training and information on various aspects of HRS Chapter 343 and Hawai'i's environmental review law.

- 5) The OEQC recruited and has utilized two college interns (unpaid) and successfully contributed to their professional development while offering them a meaningful and professional work experience opportunity.
- 6) The OEQC has processed and facilitated the publication in *The Environmental Notice* of over 250 environmental review documents during the preceding 12 months. The OEQC also consulted via phone, email and/or letter with over 2,000 individuals, agencies and private consultants on a wide range of environmental review topics.
- 7) The OEQC working in conjunction with the Council facilitated the elimination of a long-time pre-existing backlog of agency exemption review requests. This is a major achievement that allows the Council to now move forward in working with agencies statewide to improve and update exemption criteria.
- 8) The OEQC working in conjunction with the Council has facilitated the formal initiation of the administrative rule-making process (last updated in 1996).
- 9) The OEQC working with the Council created a much needed standardized “exemption declaration form” that provides uniform and clear guidance for exemption decision makers.
- 10) The OEQC is exploring obtaining outside funding via grant writing that if successful would provide additional funding for environmental educational initiatives.

Goals and objectives for 2012: OEQC is committed to continual growth and improvement focused first and foremost on the efficient management of Chapter 343, but also with regards to addressing those additional responsibilities mandated in law which in prior years have been neglected:

- 1) Continue the successful education and outreach efforts reaching into local universities, and schools, and the traditional agency and planning consultant venue.
- 2) Design and develop a new information delivery system that will automate and improve the publication, storage, and easy access of all environmental review documents.
- 3) Expand capacity to actively review and comment on the environmental review documents the office now processes.
- 4) Expand and improve the public education and environmental research components that the OEQC is mandated by law to provide.

- 5) Fully develop the intended partnership between the OEQC and the University of Hawai'i Environmental Center which has been essentially dormant for several years.

Environmental Council Chair's Report 3

by Mary Steiner, Chair of the Environmental Council

This year has been an exciting one for the Environmental Council. We started the year as a loosely connected group of volunteers with varied ideas of how we could help to improve Hawai'i's environmental review process and have become a dedicated group of 15 who fully understand our responsibilities and are taking steps to increase our effectiveness.

Last summer, the Office of Environmental Quality Control and the Environmental Council attended a joint strategic planning session. Office staff, interns, and Council members created a manageable action plan to stimulate, expand and coordinate efforts to maintain the optimal quality of the state's environment and to cultivate a positive economic development climate.

This annual report is one of the action items we identified. We agreed that we should focus on environmental indicators as we've done in the past but also to turn the report into an educational tool from which agencies and project proponents can learn. I am proud of every committee chair, council member and staff who has helped to bring it to fruition.

With the publication of this report it is fair to say that we are moving forward, looking ahead and focused on a New Day in Hawai'i.



Ma'o hau hele, an endangered hibiscus, the official state flower.
Photo courtesy of Forest and Kim Starr.

Environmental Council Committee Reports 4

Legislative Committee Report

by Chair Shannon Mears



Endangered honu 'ea (hawksbill sea turtle) hatchlings set out to sea from Oneloa Beach in Mākena, Maui. Photo courtesy of Anita Wintner.

Goals

The Legislative Committee's overall goals for 2012 are to improve environmental stewardship in the state by identifying and supporting legislation that ensures and improves environmental protection while clarifying and simplifying the environmental review process.

Results

The committee's efforts are ongoing as it seeks to improve the statutory structure for the environmental review process to facilitate compliance and oversight.

“Snapshot” of Future Activities in 1, 3, and 5 Years

By the end of the first year, the committee hopes to identify and support legislation to improve the environmental review process that could be considered "low-hanging fruit" that most, if not all, stakeholders support. These efforts will create more understanding and collaboration between stakeholders as we work to improve the environmental review process over the coming years. By the end of year three, the committee hopes to identify and support legislation that continues to protect the environment and addresses the serious issues that surround the environmental review process, as well as support other legislation that improves the environmental quality of the State. By the end of year five, the committee hopes to continue the important work of refining the environmental review process by addressing those issues that are revealed over time, as well as continuing to support legislation that protects and improves our environment.

Exemption Committee Report

By Chair David Atkin

Goals

The major goals of the Exemption Committee this year has been to clear the substantial backlog of new exemption lists and deal with proposed changes to existing lists.

Results

The Exemption Committee has accomplished its objectives, having cleared the major backlog of exemption lists. The Hawai'i Agribusiness Development Corporation, the Hawai'i Department of Accounting and General Services, Hawai'i Department of Land and Natural Resources, the City and County of Honolulu Department of Transportation Services, and the Kaua'i County Transportation Agency now have new exemption lists to help them focus their limited environmental resources on major projects.

“Snapshot” of Future Activities in 1, 3, and 5 Years

In the first year, the plan is to have helped more agencies update their lists, and helped create lists for new agencies or those that never had one. Having updated lists is a benefit for all agencies. In 3 years, the exemption process should be generally understood and used where appropriate, helping agencies prioritize their environmental activities. In 5 years, the goal is to have the exemption process moved online, with all documents easily available to all stakeholders.



Endangered 'iliohloikauaua (Hawaiian monk seal).
Photo courtesy of Cynthia Vanderlip.

Rules Committee Report

by Chair Scott Glenn

Goals

The Rules Committee's overall goals for 2012 are to initiate an update of Hawai'i Administrative Rules 11-200 and 11-201. To do this, the Rules Committee is initiating a statewide scoping process to consult with state and county agencies and with the general public.

Results

The result of the scoping process is a comprehensive, transparent, and open consideration of the rules that need revision. While not every recommendation will make it into the rules, every recommendation will have had a chance for consideration by the Environmental Council and the public.

“Snapshot” of Future Activities in 1, 3, and 5 Years

In 1 year, the Rules Committee would like to be finalizing its rules package for the Governor's signature.

In 3 years, the Rules Committee will have developed guidance with OEQC's help, on interpreting and applying the rule changes and any new rules.

In 5 years, the Rules Committee will be monitoring the implementation and application of the rules for effectiveness and considering any rule amendments that may be needed.

Performance Indicators: As a measure of achievement, the Rules Committee would consider its scoping process to be comprehensive, transparent, and open if it has received comments (even that the rules are fine) from every island, from state and county professionals in the EIS process, and concerned citizens.



Kamakou Rainforest and boardwalk, Moloka'i. Photo courtesy of Malia Akutagawa.

The State of Hawai‘i’s Environment 5

Environmental Indicators

Each year, the Environmental Council collaborates with the Hawai‘i Department of Health, Office of Environmental Quality Control, and various other state agencies to gather relevant data on the State of Hawai‘i’s environment. The Environmental Indicators are derived from the Hawai‘i Department of Health Reports on the Environment 2008 – 2011, the State of Hawai‘i Data Book, data from the Hawai‘i Department of Land and Natural Resources, and other relevant materials. Indicators were selected to illustrate trends, importance to the public and the scientific community, and ability to address key environmental questions.

Some of the key indicators the Environmental Council tracks are:

- ❖ Population
- ❖ Community Life and Housing
- ❖ Solid and Hazardous Waste
- ❖ Transportation
- ❖ Energy
- ❖ Land, Water, Mineral, Visual, Air, and Other Natural Resources
- ❖ Flora and Fauna
- ❖ Parks, Recreation, and Open Space
- ❖ Education, Culture, and Citizen Participation
- ❖ Economic Development

➤ **Population**

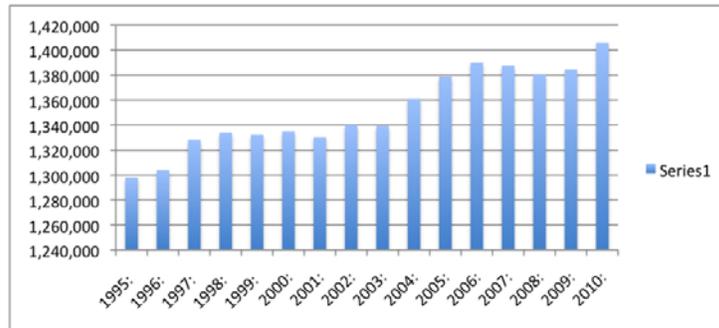
The Environmental Council is aware that population numbers impact the quality of the environment and that without careful stewardship and public accountability resources degrade as the population grows. Added pressure is placed on agriculture, water, housing, transportation, solid waste and sewage amenities, and a number of other areas. Over the last 15 years, Hawai‘i’s population has increased by 100,000 from 1.3 million to 1.4 million. The Hawai‘i Department of Business, Economic Development, and Tourism (DBEDT) estimates that by the year 2020, the state’s population will reach 1.72 million.

STATE POPULATION 1995-2010

Source: DBEDT databooks 2011 (Population)

YEAR	POPULATION
1995:	1,298,096
1996:	1,303,915
1997:	1,327,930
1998:	1,334,125
1999:	1,332,442
2000:	1,334,882
2001:	1,330,471
2002:	1,339,848
2003:	1,339,233
2004:	1,360,872
2005:	1,378,917
2006:	1,390,013
2007:	1,387,582
2008:	1,380,408
2009:	1,384,124
2010:	1,405,701

DE FACTO POPULATION (in Millions)



As of 2010, population density levels continue to be highest on O‘ahu with 1,587 persons living within a square mile. The neighbor islands have significantly lower population densities from 22 to 187 persons per square mile.² Thus, pressures on resources vary greatly between islands.

² Table 1.1 “Land Area and Population Density, by County and Island: 2010.” 2010 State of Hawai‘i Data Book. State of Hawai‘i Department of Business, Economic Development and Tourism.



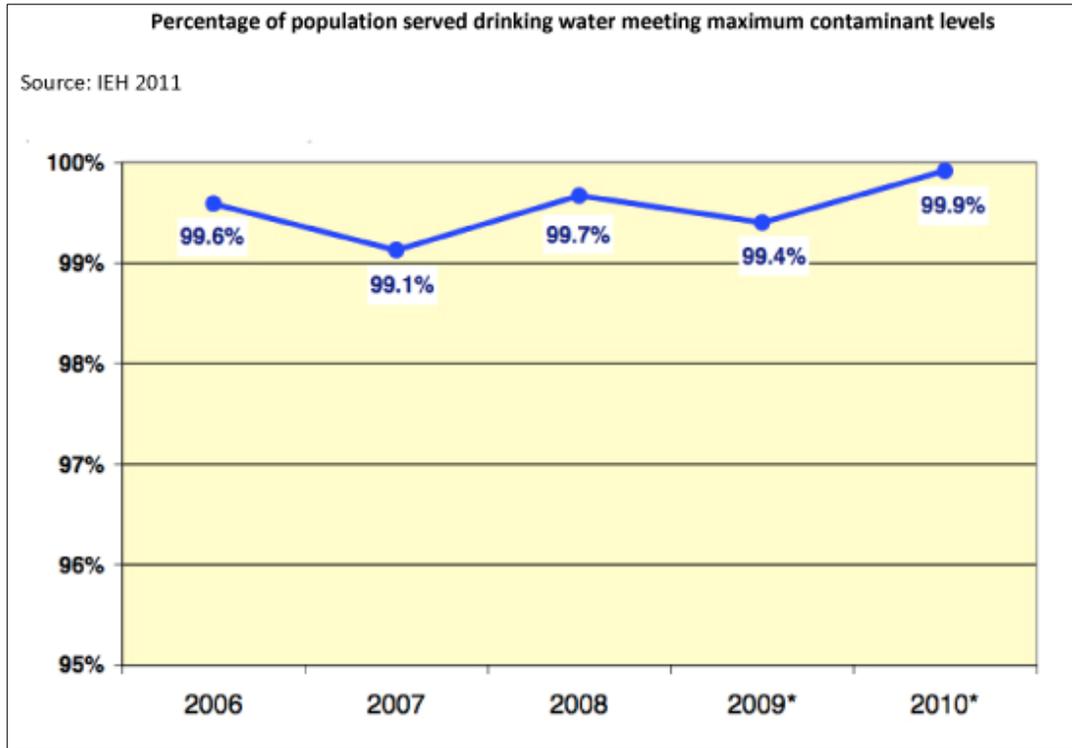
Aerial view of the island of O'ahu overlooking Waikiki, 2010. Photo courtesy of Malia Akutagawa.

While population growth expands, the State will need to determine the islands' carrying capacity, make infrastructural improvements, and adopt sustainable practices that prevent overuse of precious resources.

➤ **Community Life and Housing**

New housing development should be designed to preserve and maintain a strong sense of community; compatibility with a healthy natural environment; and reflective of the best of Hawai'i's multi-cultural society. In terms of indicators important to preserving environmental quality for people and communities, we measure pollution; the degree to which homes are safe, sanitary, and decent; and aesthetics, including preserving mauka-to-makai vistas, appropriate landscape design in urban areas, encouraging green belts and open space.

Maximum Contaminant Levels (MCLs) is the standard utilized to measure whether drinking water is safe or harmful to human consumption. The following table analyzes the quality of water provided to Hawai'i's households.³ Over a 5-year period analyzed from 2006 to 2010, data indicate that 99% of Hawai'i's population were consistently served drinking water that met all of the MCLs.



Increased population growth and density, especially in urban environments, require innovative approaches to sustainable living. As green-building strategies have begun to enter mainstream consciousness, there is an increasing momentum to update Hawai'i's workforce and train professionals in internationally recognized Leadership in Energy and Environmental Design (LEED) standards. LEED was established in 2000 by the United States Green Building Council (USGBC). LEED certification of homes and buildings centers around ensuring human and environmental health. Key areas that LEED provides measurable standards for are "sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality."⁴ On a systemic level, existing infrastructure can be greened and re-designed. Subdivisions and cities could be updated to include "green roofs, permeable paving, bioinfiltration and rain gardens, drainage swales, and naturalized

³ State of Hawai'i Department of Health, Environmental Health Administration. *Indicators of Environmental Health* 2011. February, 2011: 16.

⁴ U.S. Green Building Council official website. Web <<http://www.usgbc.org/DisplayPage.aspx?CMSPageID=124>>.

detention basins.”⁵ While most housing in Hawai‘i does not meet LEED standards and affordability of such homes is out of reach for many, the growing trend is towards reducing our environmental footprint in the way we live and do business. In an island-state where awareness of our finite resources is more evident, this is a path we must take.

Planting trees in lower land areas and in urban environments can enhance the quality of our watershed from mauka to shoreline. Trees serve to increase water quality and quantity by slowing the flow of water and allowing for passive water soakage in the lower regions before reaching the ocean. As a collective, community-based groups such as the Friends of Hawai‘i’s Urban Forest and The Outdoor Circle are joining forces with government agencies such as the Division of Forestry and Wildlife and the United States Department of Agriculture Forest Service to form the Kaulunani Urban and Community Forest Program, to arrive at a creative strategies for reducing the ecological footprint of our urban environments.⁶ Benefits identified in establishing urban forests include improving human health and well-being; providing noise and wind buffers in addition to aesthetics; lowering energy costs; reducing the “heat island effect” of urban structures through shading; carbon sequestration; pollution trapping; stabilizing soil and slowing storm runoff; providing tsunami, storm/hurricane buffers; increasing property values; and creating a sense of connection to nature.⁷

⁵ State of Hawai‘i Department of Land and Natural Resources Division of Forestry and Wildlife. *Hawai‘i Statewide Assessment of Forest Conditions and Trends: 2010 An Assessment of the State of Our ‘Āina*. State Forester Paul J. Conry and Forester Ronald Cannarella. June 18, 2010: 130.

⁶ Id. at 115-116.

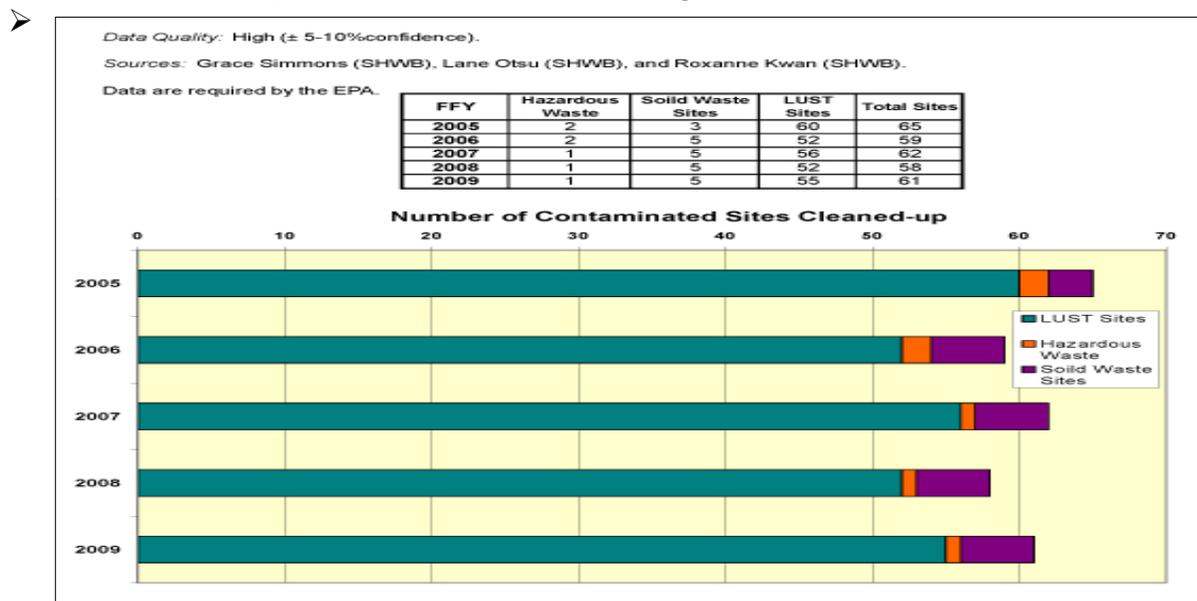
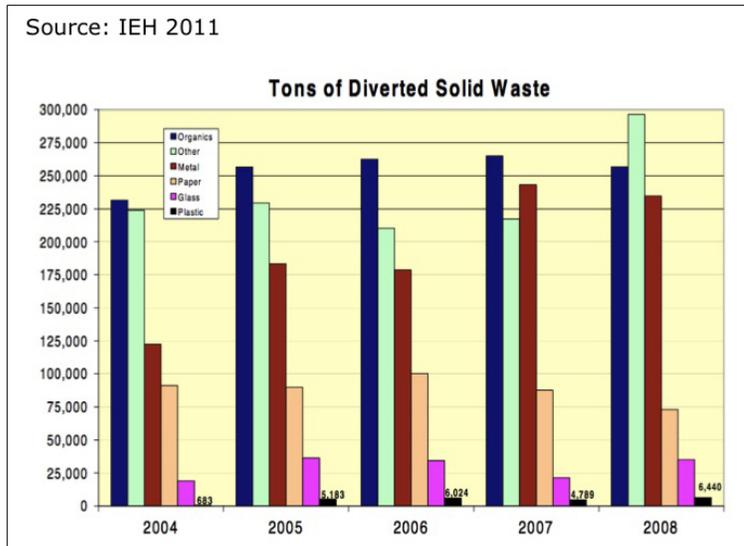
⁷ Id. at 119.

➤ **Solid and Hazardous Waste**

According to the Hawai'i Department of Health, landfill waste has continued to increase over the years. Diverted waste rates through recycling and reuse have also increased. Hawai'i's current diversion rate is 35.7%, still short of the State's goal of 50%.⁸

A lot of progress has been made in clean up of contaminated sites such as leaking underground storage tanks (LUSTs) and hazardous and solid waste sites. The information below has been provided by the Hawai'i Department of Health's recent publication of *Indicators of Environmental Health 2011*.⁹

Over the last 23 years from 1987 to 2010 a total of 2,019 releases from underground storage tanks were confirmed. Of these LUST sites, 89% have been cleaned-up.¹⁰ Hazardous waste is characterized as having either "ignitability, corrosivity, reactivity, or toxicity."¹¹ Hazardous waste generation from 1999 to 2007 ranged annually from 780 to 1,500 tons and is considered relatively low compared to mainland figures.¹²



⁸ Id. at 14.

⁹ Id. at 11.

¹⁰ Id. at 12.

¹¹ Id. at 13.

¹² Id. at 13.

Energy

The Environmental Council encourages the efficient use of energy resources. The following table provides a breakdown of energy uses in trillions of British Thermal Units (BTUs) and sources over the last 4 decades:

Year	Petroleum	Coal	Biomass	Municipal Solid Waste	Geothermal	Hydroelectric	Wind	Photovoltaic	Solar Hot Water
1970	197.228		26.902			1.100			
1980	248.011		24.200			0.900			0.770
1990	284.491	0.890	18.120	4.930	0.000	1.070	0.290		2.340
2000	290.235	15.472	7.133	5.109	2.586	0.948	0.179	0.004	3.548
2005	291.501	15.578	5.284	4.201	2.280	1.146	0.069	0.020	4.495
2008	258.014	17.883	8.831	5.423	2.422	0.937	2.384	0.151	5.204

As leaders worldwide begin to grapple with the effects of global climate change and how to reverse these trends, the Hawai'i State Legislature in 2007 pledged through Act 234 its commitment to reduce greenhouse gas emissions to or below 1990 levels by the year 2020.¹³ This is significant due to Hawai'i's status as the most oil-dependent State with nearly full-dependence (90%) on fossil fuel imports.¹⁴ Under Act 234, a Greenhouse Gas Emissions Reduction Task Force is to be formed to develop a work plan to meet these goals.¹⁵

In 2008, former Governor Linda Lingle entered into an agreement with the federal government for a Hawai'i Clean Energy Initiative (HCEI).¹⁶ HCEI's goals are "(1) transforming Hawai'i to a 70% clean energy economy by 2030, and reaping all the attendant economic and environmental benefits of such transformation including (2) increasing Hawai'i's energy and economic security, (3) fostering and demonstrating Hawai'i's innovation, (4) building the work force for the future, and (5) serving as a clean energy model for the U.S. and the world."¹⁷ The HCEI looked at 4 sectors of the energy economy with a clear over-arching goal for each:¹⁸

1. *Electricity Generation: achieve 40% from renewable energy sources*
2. *End-Use Efficiency: reduce 30% of electricity consumption*
3. *Transportation: reduce 70% of petroleum used for ground transportation*
4. *Fuels: develop locally produced renewable fuel for the electricity and transportation sectors.*

¹³ State of Hawai'i Department of Health, Environmental Health Administration. *Indicators of Environmental Health 2011*. February, 2011: 3.

¹⁴ *Id.* at 2.

¹⁵ *Id.* at 3.

¹⁶ *Id.* at 3.

¹⁷ *Hawai'i Clean Energy Initiative Road Map and Introduction and Overview 2011*.

<http://www.hawaiicleanenergyinitiative.org/storage/media/HCEI_RoadmapSummary_FINAL_ID-11909.pdf>

¹⁸ *Id.* at iv.

To date, accomplishments include an energy agreement between the Hawaiian Electric Company (HECO) and the State on commitments to increase energy efficiency and improve grid operation and infrastructure; completed construction on a 30 MW wind farm in Kahuku; Hawai'i leading the country in photovoltaic installation growth rate, and completed studies for each island on wind and solar power grid-integration.¹⁹ In terms of end-use efficiency, several tasks have been achieved: establishment of a 4,300 GWh Energy Efficiency Portfolio Standard (EEPS) goal set by 2030; creation of a Public Benefits Fund to finance building retrofits with energy efficiency technologies; the adoption by all counties of the new, highly efficient building codes (IECC 2006 or higher); and the decoupling of utility revenue stream from kWh sales.²⁰

In terms of local production of renewable fuels for electricity, what has been completed so far is a Hawai'i Bioenergy Master Plan; the only biofueled turbine of its kind in the world is run by HECO; An RFP for 210 MGY for locally produced biofuels issued by HECO as well as signed purchase contracts.²¹



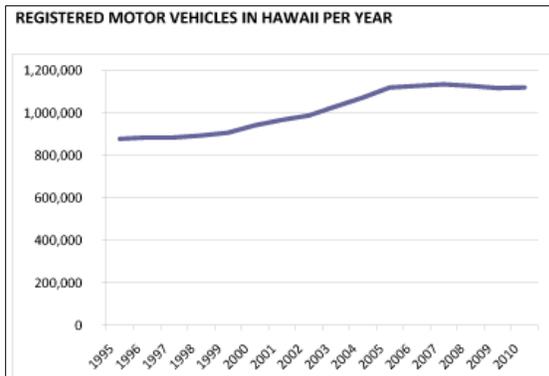
Hawai'i's largest solar farm located on 10 acres of old pineapple land on the island of Lāna'i. The solar farm has over 7,400 photovoltaic panels and produces 1.2 megawatts of renewable energy, roughly 30% of the island's daily needs. Photo courtesy of Malia Akutagawa.

¹⁹ Id. at v.

²⁰ Id. at vi.

²¹ Id. at viii.

➤ **Transportation**



Motor vehicles registered in the state have steadily climbed over the last 15 years. In 1995, there were 877,756 vehicles registered. Since that time, the number of vehicles registered has increased to 1.12 million cars.²² Likewise, there is an upward trend towards increasing vehicle miles of travel and fuel consumption in direct correlation to the growing number of cars on our highways.²³

**MOTOR VEHICLE FUEL CONSUMPTION
VEHICLE MILES, 1990 TO 2010, AND BY COUNTY**

Year and county	Highway fuel consumption 1/		Annual vehicle miles of travel	
	(1,000 gallons)	vehicle 2/	(millions)	vehicle 2/
1990	395,185	444	8,065.4	9,071
1991	406,819	453	8,142.2	9,075
1992	405,963	457	8,065.5	9,070
1993	409,940	468	7,945.3	9,063
1994	428,558	490	7,925.2	9,056
1995	422,884	482	7,944.1	9,051
1996	426,370	482	8,005.9	9,050
1997	421,499	477	8,003.0	9,050
1998	422,928	473	8,090.2	9,055
1999	417,374	460	8,215.2	9,058
2000	428,425	455	8,525.7	9,058
2001	445,558	461	8,754.3	9,052
2002	477,518	484	8,937.3	9,050
2003	483,232	469	9,325.0	9,046
2004	498,816	463	9,734.6	9,042
2005	505,418	459	10,129.1	9,045
2006	531,505	471	10,196.3	9,044
2007	541,956	478	10,259.9	9,043
2008	540,910	480	10,189.1	9,036
2009	545,413	488	10,095.2	9,031
2010	500,987	447	10,111.0	9,027
COUNTY: 2009				
Honolulu	308,064	430	6,276.1	3/ 8,738
Hawaii	118,362	686	1,676.3	3/ 9,734
Kauai	51,576	685	773.6	3/ 10,476
Maui	67,412	441	1,369.2	3/ 8,921
COUNTY: 2010				
Honolulu	295,193	410	6,291.4	8,735
Hawaii	99,860	581	1,673.1	9,729
Kauai	44,228	601	771.5	10,487
Maui	61,707	400	1,375.0	8,913

Source: DBEDT databooks 2011 (Transportation)

On the positive side, there is also evidence of increase in bicycle and moped use in the last few years. Figures show that there were 290,614 bicycles and mopeds registered in 2008.²⁴ This amount consistently rose the following years with 318,759 in 2009 and 352,402 in 2010.²⁵ The data suggest that more people are seeking more fuel efficient modes of transportation. Motivations for this behavior could be attributed to rising costs at the pump and issues of overcrowding and lack of convenient parking.

The Hawai'i Clean Energy Initiative (HCEI), a partnership between the State and United States Department of Energy (USDOE), has identified as one of its goals the reduction in petroleum consumption for ground transportation by 70% or an estimated 385 MGY by 2030.²⁶ Areas that the State and USDOE will

²² Table 18.07 "Motor Vehicles Registered, by County: 1995 to 2010." 2010 State of Hawai'i Data Book. State of Hawai'i Department of Business, Economic Development and Tourism.

²³ Table 18.17 "Motor Vehicle Fuel Consumption and Vehicle Miles, 1990 to 2010, and By County, 2009 and 2010." 2010 State of Hawai'i Data Book. State of Hawai'i Department of Business, Economic Development and Tourism.

²⁴ Table 18.22 "Registered Taxicabs and Bicycles, by Island: 2008 to 2010." 2010 State of Hawai'i Data Book. State of Hawai'i Department of Business, Economic Development and Tourism.

²⁵ Id.

²⁶ Hawai'i Clean Energy Initiative Road Map and Introduction and Overview 2011.

<http://www.hawaii-cleanenergyinitiative.org/storage/media/HCEI_RoadmapSummary_FINAL_ID-11909.pdf>

be working towards are (1) improving standard vehicle efficiency; (2) reducing the number of vehicle miles traveled (VMT); (3) expanding renewable fuels use for transportation; and (4) expediting the development of electric and hydrogen vehicles and associated infrastructure.²⁷ Measures achieved to date are a 3% sales increase of Hybrid Electric Vehicles (HEV) for a total of 9,000 HEVs; 80 HEV transit buses on O‘ahu operating regularly; the establishment of a Hawai‘i EV-Ready Program to provide incentives through grants and rebates for EV charger installation of purchase of HEVs; a Hawai‘i Hydrogen Initiative with partners General Motors, The Gas Company, and others formed to develop hydrogen production distribution and fuel cell vehicles; and City and County of Honolulu vehicles run on locally-produced biodiesel.²⁸

One of areas HCEI is also focusing on is locally produced renewable fuels for transportation. To this end, accomplishments to date include the production and delivery of biodiesel on four of the main Hawaiian islands; several small-scale crop trials and pilots; drop-in replacement fuel refinery projects have started and are ongoing; cars in Hawai‘i utilize gas with a 10% ethanol content; and the United States Department of Defense issued a request for information for 32 MGY of renewable drop-in replacement fuel for Hawai‘i operations.²⁹

As the world faces the imminent consequences of peak oil, we will all have to kick the habit of relying on fossil fuels to power our automobiles and industry. Hawai‘i is most vulnerable as the state most dependent on oil imports. We must commit ourselves to finding solutions to our fuel dependency and address more viable means of transportation that utilize renewable resources and support public transportation options that are compatible with the health of our environment.

²⁷ Id.

²⁸ Id. at vii.

²⁹ Id. at viii.

➤ **Land, Water, Mineral, Visual, Air, and Other Natural Resources**

The Environmental Council encourages best management practices in the conservation and care of natural resources; forests and watersheds; and natural area, wildlife, forest, marine, and unique ecological preserves. Other important issues considered are maintaining good air quality; irrigation and waste water management and recycling; promoting optimal use of solid wastes through waste prevention, energy resource recovery, and recycling; and maintaining an integrated land-use planning system within Hawai'i state and county jurisdictions. Keeping the quality of our air, land, water, natural resources and Hawai'i's aesthetic features require conscientious management.

The following table³⁰ provides values for particulate matter 10 microns or less in diameter (PM10) and carbon monoxide (CO) levels in parts per million (ppm) as tested in Honolulu, O'ahu. We are happy to report that our state's air quality remains excellent, with CO and PM10 concentrations well below the national standard.

AIR QUALITY 1993-2010

Air Quality in Downtown Honolulu (1993-2010)

Source: DBEDT databooks 2011 (Geography and Environment)

Annual arithmetic means, in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$), for particulate matter 10 microns or less in diameter (PM10) and in parts per million (ppm) for carbon monoxide (CO). Sampling is conducted about 46 feet above ground on the roof of the State Health Department Building - Kinau Hale, 1250 Punchbowl Street, Honolulu, Hawaii

Year	PM ₁₀ ($\mu\text{g}/\text{m}^3$) 1/	CO (ppm) 2/
1993	13	1.8
1994	14	0.8
1995	14	0.8
1996	14	0.8
1997	8	0.8
1998	9	0.8
1999	14	0.6
2000	14	0.7
2001	16	0.6
2002	15	0.6
2003	15	0.6
2004	13	0.6
2005 3/	14	0.6
2006 4/	13	0.4
2007	14	0.5
2008	14	0.5
2009	13	0.4
2010	12	0.4

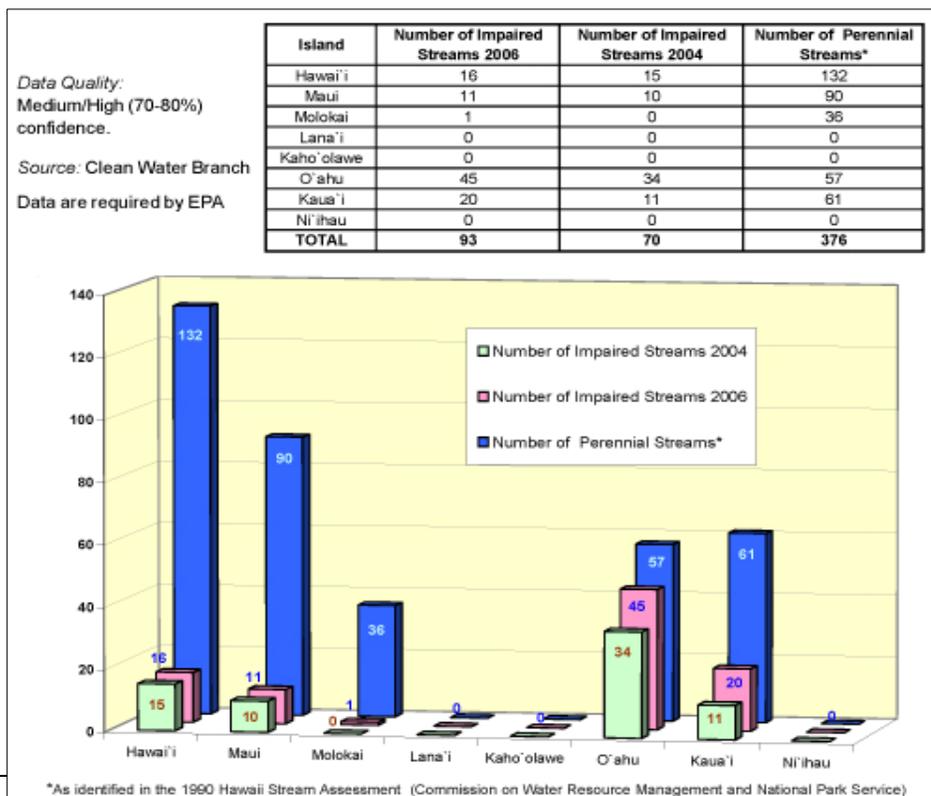
1/ The State Ambient Air Standard for PM₁₀ annual average is 50 $\mu\text{g}/\text{m}^3$. The Federal standard was revoked by the U.S. Environmental Protection Agency effective December 17, 2006.
 2/ There is no annual standard for CO. The State Ambient Air Standard for 1-hour CO is 9 ppm and the Federal standard is 35 ppm.
 3/ Represents data until July 14, 2005, when the monitoring station was closed for roof repairs.
 4/ Represents data from August 5, 2006, after completion of roof repairs.

Source: Hawaii State Department of Health, Environmental Management Division, Clean Air Branch records.

³⁰ Modified after Table 5.31 "Air Quality in Downtown Honolulu (1993-2010)." *State of Hawai'i Data Book, 2010 (Geography and Environment)*. State of Hawai'i Department of Business and Economic Development and Tourism.

The number of impaired coastal waters as of 2006 is reported at 209 statewide. Turbidity due to runoff was cited as the main cause of pollution.³¹ A concerted effort is needed to improve the health of our watersheds and repair denuded landscapes. In urban areas, certain land use practices serve to degrade the aquatic and marine environment. Activities such as stream channelization and covering the landscape with impervious surfaces spur flash flooding events that overwhelm sewage facilities.³² Massive inputs of freshwater carrying sediments and pollutants and inadvertent discharges of raw sewage all serve to degrade our waters.

The latest information on Hawai'i's streams comes from data published in 2006. As shown in the table below, as of 2006, a total of 93 streams were listed as impaired in terms of reduced water quality and input of pollutants exceeding Total Maximum Daily Loads (TMDLs).³³ With this information, regulators, businesses, community groups, and businesses can begin to identify, stop or reduce the sources of pollution and return streams to optimal water quality that sustains aquatic life.³⁴



³¹ State of Hawaii Department of Health, Environmental Health Administration. *Indicators of Environmental Health 2011*. February, 2011: 23.

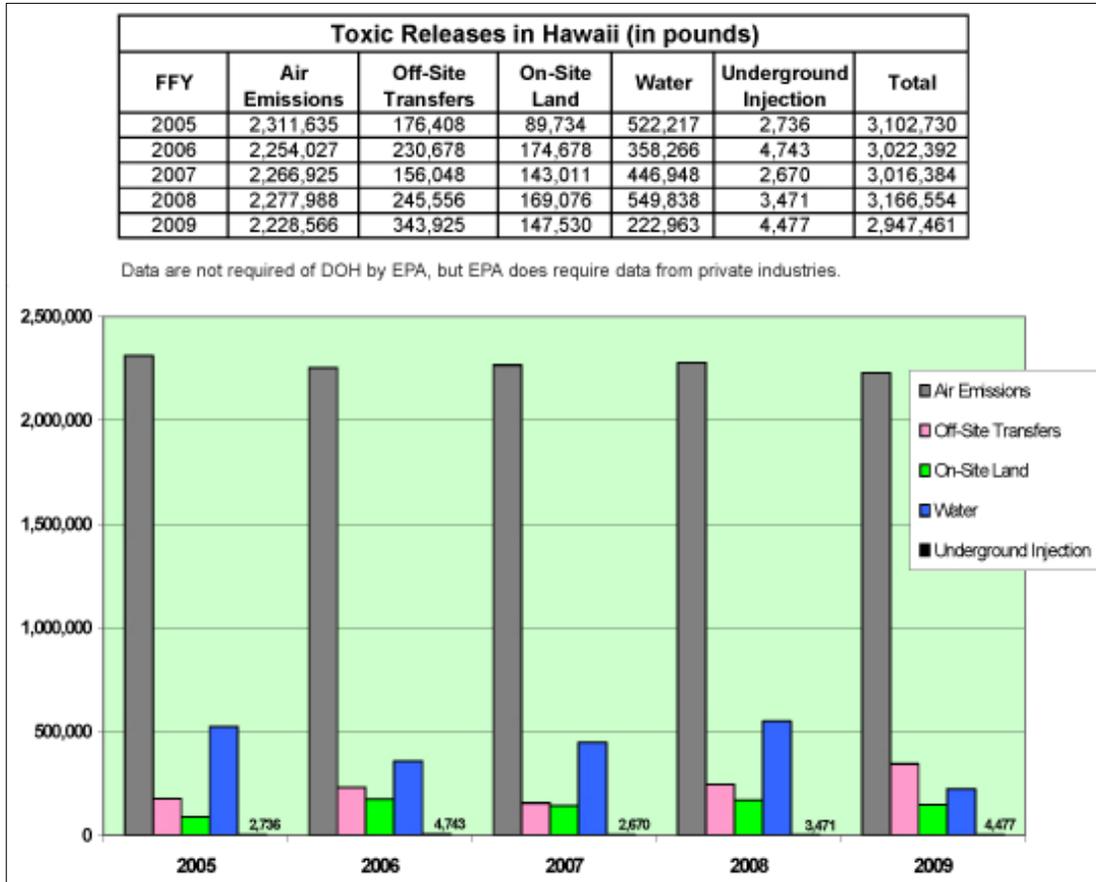
³² State of Hawai'i Department of Land and Natural Resources Division of Forestry and Wildlife. *Hawai'i Statewide Assessment of Forest Conditions and Trends: 2010 An Assessment of the State of Our 'Āina*. State Forester Paul J. Conry and Forester Ronald Cannarella. June 18, 2010: 60.

³³ State of Hawai'i Department of Health, Environmental Health Administration. *Indicators of Environmental Health 2011*. February, 2011: 22.

³⁴ Id.

On average, there are an estimated 400-500 chemical releases onto land and into water that are reported to the Hazard Evaluation and Emergency Response (HEER) office. Most releases are minor.³⁵

Toxic release figures are known for air emissions, off-site transfers, on-site land, water, and underground injection. These toxins are discharged by facilities. According to the Hawai'i Department of Health, these data are insufficient to determine exposure rates nor health risks to humans and the environment.³⁶



³⁵ Id. at 24.

³⁶ Id. at 25.

➤ **Forests and Nearshore Waters**

An indicator of environmental health includes the establishment, preservation, and maintenance of natural and cultural areas, including forests and shorelines for public recreational, educational, and scientific uses.

Table 6.04-- ESTIMATED ACREAGE OF LAND USE DISTRICTS, BY ISLAND: DECEMBER 31, 2006

[Total acreage, including inland water, as classified by the Hawaii State Land Use Commission under the provisions of Chapter 205, Hawaii Revised Statutes, as amended. All data are approximate]

Island	Total area 1/	Classification by State Land Use Commission 2/			
		Urban	Conservation	Agricultural	Rural
State total	4,112,388	197,663	1,973,631	1,930,224	10,870
Hawaii 3/	2,573,400	53,722	1,304,347	1,214,040	1,291
Mauui	465,800	22,823	194,836	244,088	4,053
Kahoolawe	28,800	-	28,800	-	-
Lanai	90,500	3,257	38,197	46,639	2,407
Molokai	165,800	2,539	49,768	111,627	1,866
Oahu 3/	386,188	100,764	156,614	128,810	-
Kauai	353,900	14,558	198,769	139,320	1,253
Niihau	45,700	-	-	45,700	-
Kaula and Lehua	400	-	400	-	-
Other islands 4/	1,900	-	1,900	-	-

1/ These totals differ somewhat from the official figures based on measurements by the Geography Division of the U.S. Bureau of the Census, cited in Section 5.
 2/ For definitions, see Hawaii Revised Statutes, Section 205-2.
 3/ May be revised, pending updates of County records.
 4/ The Northwestern Hawaiian Islands, from Nihoa to Kure Atoll, excluding Midway.
 Source: Hawaii State Department of Business, Economic Development & Tourism, Land Use Commission, records.

There are four different types of land –use districts in Hawai‘i: Urban, Conservation, Agriculture, and Rural. The table provided here depicts the largest acreages in Conservation and Agriculture.³⁷ The State's priority to preserve open space, parks, forests, and sensitive ecosystems that maintain environmental quality and the health of our island resources is a prudent form of management.

A framework for protection of Hawai‘i’s forests began as early as

1904 during the pre-statehood period with the establishment of the Territorial Forest Reserve System.³⁸ This was in response to public alarm over dwindling water supplies, observances of perennial streams and springs drying up, and flash floods discharging mud onto the reefs.³⁹ This was in direct correlation to the deterioration of the native upland forests between 1779 and the last half of the 19th century from feral ungulates such as wild cattle, sheep, and goats.⁴⁰ Some of the damage has been reversed on through fencing, ungulate eradication, and massive tree-planting involving many volunteers. Nearly 1 million acres, identified as important recharge areas of both public and private lands, were set aside for protection.⁴¹ This was a true partnership between government and private landowners who volunteered their lands through "surrender agreements" so that foresters could effectively manage the lands as whole units.⁴²

³⁷ “Table 6.04 – Estimated Acreage of Land Use Districts, By Island: December 31, 2006. *State of Hawai‘i Databook, 2010*. State of Hawai‘i Department of Business and Economic Development and Tourism.

³⁸ State of Hawai‘i Department of Land and Natural Resources Division of Forestry and Wildlife. *Hawai‘i Statewide Assessment of Forest Conditions and Trends: 2010 An Assessment of the State of Our ‘Āina*. State Forester Paul J. Conry and Forester Ronald Cannarella. June 18, 2010: 59.

³⁹ Id.

⁴⁰ Id. at 58.

⁴¹ Id. at 48.

⁴² Id at 48.

Today, the Forest Reserve System is administered by the State of Hawai'i Division of Forestry and Wildlife (DOFAW). DOFAW has chief jurisdiction for the management of forests on state owned conservation lands and works with private landowners where possible to protect privately owned lands.⁴³ The Natural Area Reserves System (NARS) was also established for the preservation of native ecosystems and geologic sites.⁴⁴ The primary mandate for NARS is conserving Hawai'i's biodiversity, while forest management more broadly considers multiple uses.⁴⁵ DOFAW also works closely with federal entities such as the National Park Service and United States Fish and Wildlife Service. The Nature Conservancy is also an important partner.⁴⁶ Careful coordination among several management entities is necessary under these multiple jurisdictions, and the formation of public-private partnerships has become a strategy for protecting private conservation lands as well.

One major concern related to preserving our forests is the issue of wildfires. Native Hawaiian ecosystems are not well-adapted to wildfire.⁴⁷ Fires destroy native habitat and

threatened and endangered species residing there; adversely impact functioning watersheds; increase soil erosion and sedimentation onto reefs; and begin to alter ecosystems in favor of introduced, non-native species that serve to exacerbate and

**Table 20.03-- FOREST AND BRUSHLAND FIRES, BY CAUSE OF FIRE:
2008 TO 2010**

Cause of Fire	Number of Fires			Acres burned		
	2008	2009	2010	2008	2009	2010
State total	32	8	11	2,385.2	8,079.1	3,521.9
Lightning	-	-	1	0.0	-	900.0
Campfire	3	-	2	3.2	-	2.1
Smoking	-	-	-	0.0	-	-
Debris burning	1	-	-	5.0	-	-
Arson	2	-	2	51.5	-	1,487.0
Equipment	8	-	-	1,125.5	-	-
Railroads	-	-	-	-	-	-
Children	-	-	-	-	-	-
Miscellaneous	18	8	6	1,200.0	8,079.1	1,132.8

Source: Hawaii State Department of Land and Natural Resources, Division of Forestry and Wildlife, Fire Management Program, *Annual Wildfire Summary Report* <<http://www.wildahinet.com/fmp/firedata.htm>> accessed July 12, 2011 and records.

promote additional fires such as infiltration of fire-adapted grass species.⁴⁸ The following table tracks acreage of forests and brush lands impacted by fire during the years from 2008 to 2010. 2009 resulted in the largest acreage of land damaged by fire at 8,079 acres as compared to 2,385 acres in 2008 and 3,522 acres in 2010. Most troubling here is that the primary cause of fire in 2010 was deliberate arson.

⁴³ Id at 53.

⁴⁴ Id. at 53.

⁴⁵ Id. at 53.

⁴⁶ Id. at 53.

⁴⁷ Id. at 101.

⁴⁸ Id. at 101.

Hawai'i's beaches are one of our state's greatest natural assets. Residents and visitors alike seek Hawai'i's warm and inviting waters year-round for sunbathing, recreation, fishing and gathering, and general well-being. Unfortunately, these activities are sometimes compromised when significant levels of contaminants are inadvertently released into the waters (e.g., sewage and chemical spills). The following table reveals the amount of shoreline postings from 2006 to 2010 due to contamination events:⁴⁹

Calendar Year	Total Days Per Year Shorelines Posted	Days Posted from Sewage Events
2006	529	368
2007	151	151
2008	159	159
State FY		
2009	310	310
2010	403	403

Source: Clean Water Branch
Data Quality: Medium
(± 10-25%) confidence

Notes:
i) These numbers do not reflect postings of warning signs on streams, lakes, and other inland waters, such as the Ala Wai Canal.
ii) Other agencies may also post other shoreline warning signs. For example, the City and County of Honolulu posts warning signs on beaches after opening stream mouths to drain water. These are not included in this table.
iii) This does not include "brown water advisories" which are general media releases anticipating or responding to heavy storm water runoff and are not accompanied by actual postings.

Hawai'i is not immune to global environmental conditions. As small, isolated islands surrounded by the vast Pacific Ocean, home to a diverse array of plant and animal species that exist nowhere else on the planet, and micro-environments ranging from snow-peaked mountains to coastal sand dunes held in place by the native hinahina and crawling pā'ū o Hī'iaka, we are extremely vulnerable to and aware of the effects of climate change. Worldwide average temperatures have risen by 1.5 degrees Fahrenheit since 1970, and are expected to rise between 2 and 11 degrees Fahrenheit by the end of this century, depending on how much greenhouse gas emissions continue to occur into the future.⁵⁰ Hawai'i's climate data directly correlates with global figures. Over the past 3 decades, our state has seen marked increases in temperature, averaging 0.3 degrees Fahrenheit every 10 years, with warming occurring especially at higher elevations. The effect of these changes include a significant decrease in rainfall and stream flow; increased rain intensity; rising sea level and sea temperatures; and an acidifying ocean.⁵¹ The long-term consequences of these effects are diminishing water availability; ailing forests with less biodiversity; larger, more frequent, and more intense wildfires; more flash flooding and damage to agriculture and human settlements; eroding beaches; damaged and bleached corals and harm from acidification to marine species with calcium rich shells and exoskeletons (e.g., clams, crabs, and shrimp) and species that depend on them along the food chain. In terms of the effects

⁴⁹ State of Hawai'i Department of Health, Environmental Health Administration. *Indicators of Environmental Health 2011*. February, 2011: 19.

⁵⁰ State of Hawai'i Department of Land and Natural Resources Division of Forestry and Wildlife. *Hawai'i Statewide Assessment of Forest Conditions and Trends: 2010 An Assessment of the State of Our 'Āina*. State Forester Paul J. Conry and Forester Ronald Cannarella. June 18, 2010: 136.

⁵¹ Id. at 137.

on the human population, enjoyment and continued access to these open areas for recreation, study, fishing, and subsistence activities will be compromised.

➤ **Flora and Fauna**

The Hawaiian islands formed over 70 million years in isolation, surrounded by the Pacific Ocean and separated for more than 2,000 miles from the nearest continent.⁵² It served as a natural laboratory for the evolution of over 10,000 plant and animal species found nowhere else on the planet.⁵³ This figure does not include the likely thousands of species that have yet to be discovered and described scientifically.⁵⁴ A rough estimate of what is believed to be discovered further is 14,000 terrestrial, 100 freshwater, and 6,500 marine taxa.⁵⁵ Hawai'i has been coined the "endangered species capital" of the nation with over 30% of federally listed threatened and endangered species coming from the islands.⁵⁶

Source: DBEDT databooks 2011 (Geography and Environment)

THREATENED AND ENDANGERED SPECIES, FOR THE UNITED STATES AND HAWAII

[As of April 7, 2011]

Group	United States	Hawaii
Animal species	579	63
Amphibians	24	-
Arachnids	12	1
Birds	93	34
Clams	71	1
Corals	2	-
Crustaceans	22	1
Fishes	138	-
Insects	60	16
Mammals	84	3
Reptiles	37	5
Snails	36	2
Plant species	792	319
Conifers and cycads	3	-
Ferns and allies	29	15
Flowering plants	758	304
Lichens	2	-

Source: U.S. Fish & Wildlife Service, Threatened and Endangered Species System (TESS) <http://ecos.fws.gov/tess_public> accessed April 7, 2011.

The greatest threats to Hawai'i's native species and rich biodiversity is the prevalence of "non-native invasive, habitat-modifying plants, animals, and disease."⁵⁷ The recovery of endangered and threatened species is an uphill battle due to their small numbers.



Invasive miconia plant. Photo courtesy of the O'ahu Invasive Species Committee.

As invasive plants overtake native plant ecosystems, the effectiveness of our watersheds and forests as critical habitat for native species is also compromised. Invasive plants can shade out native understory and expose the soil to erosion. One such example is the proliferation of miconia which is less effective than native trees and other vegetation in retaining water to maintain the watershed.⁵⁸ Its presence not only

⁵⁵ Id.

⁵⁶ Id.

⁵⁷ Id. at 158.

serves to crowd out other native plants, but adversely affects the viability of an entire habitat that houses numerous other native species. In this instance, one can see a direct correlation between habitat loss and species loss. Recognizing the need to adopt a habitat and ecosystems approach, the development of a Comprehensive Wildlife Conservation Strategy (CWCS) is federally mandated for all States for native species protection.⁵⁹ The CWCS takes the holistic approach of managing ecosystems that keep native flora and fauna healthy and vibrant. Management is centered around maintaining habitats and the complex inter-relationships found in nature.⁶⁰ The Hawai'i Department of Land and Natural Resources Division of Aquatic Resources and Division of Forestry and Wildlife, along with private entities, such as The Nature Conservancy, have worked together to coordinate Hawai'i's CWCS. Understanding the health of Hawai'i's native flora and fauna requires an assessment of the habitats that sustain them.

The accuracy of the fishing data provided in the following table may be in question, due to a customary low level of reporting by fishermen.⁶¹ What is most troublesome is the fact that in terms of catch harvests and efficiency, longline fishing was reported as the method utilized to achieve the greatest poundage of catch. Values ranged from 21.8 to 26.9 million pounds of fish per year from 2008 to 2010.

Table 20.04-- COMMERCIAL FISHING: 2003 TO 2010

[Fiscal year ending June 30. Represents the total sea catches of all licensed commercial fishers. Excludes pond catches, The Aquaculture and Development Program, Department of Agriculture, surveys pond harvest market information]

Year	Number of commercial fishermen	Commercial fish catch		
		Pounds landed	Pounds sold	Value to primary producers (dollars)
2003	3,434	24,054,939	(1)	(1)
2004	2,971	22,230,489	(1)	(1)
2005	3,248	24,876,316	(1)	(1)
2006	3,137	24,636,892	(1)	(1)
2007	3,220	26,563,127	(1)	(1)
2008	3,196	33,310,542	(1)	(1)
2009	3,557	2/ 28,065,282	(1)	(1)
2010	3,373	29,164,222	(1)	(1)

1/ Due to revisions to the commercial fishing report forms in October 2002, licensed commercial fishers no longer report ex-vessel landing values. The latter information is collected from a fish dealer reporting system. The Division of Aquatic Resources is developing an application to integrate the fishing and fish dealer reporting systems to summarize landings with ex-vessel landing value information. Therefore, only total landings reported by commercial fishers are available at this time.

2/ Revised from previous *Data Book*.

Source: Hawaii State Department of Land and Natural Resources, Division of Aquatic Resources, *Commercial Fish Landings for Fiscal Year* (annual) and records.

This destructive method of fishing is indiscriminate and most responsible for declining fisheries worldwide due to its over-effectiveness in depleting not only individual target fish stocks, but significant numbers of discarded by-catch, such that entire food webs and marine ecosystems are compromised.

⁵⁸ Id. at 81.

⁵⁹ Id.

⁶⁰ Id.

⁶¹ "Table 20.04 – Commercial Fishing: 2003 to 2010." *State of Hawaii Data Book, 2010*. State of Hawai'i Department of Business and Economic Development and Tourism.

More management and enforcement is needed to create sustainable fisheries. This means eliminating use of fishing gear that needlessly harvest a high level of by-catch; protecting feeding, breeding, and spawning areas; and maintaining target species' populations to ensure their reproductive viability and natural function in a healthy ecosystem. This is especially important for our island State, as over 25% of the marine life in Hawai'i's waters are endemic.⁶²

There is a growing recognition of the effectiveness and wisdom behind the traditional Hawaiian ahupua'a management system, a comprehensive approach that links from mountain to sea several ecosystems. The ahupua'a begins with the integration of intact healthy forests and watersheds at the top, to productive agriculture in the kula lands below, and nutrient flows and freshwater springs feeding fishponds along the shoreline, adding to the productivity and conservation of reef and open ocean marine habitats further out. The Papahānaumokuākea Marine National Monument encompassing the islands and waters of the Northwest Hawaiian Islands was established in 2006 under proclamation signed by President George W. Bush.⁶³ It is the largest monument in the country and one of the largest in the world, spanning 137,792 square miles, 4,500 square miles of which consists of pristine coral reefs.⁶⁴ The management scheme for Papahānaumokuākea is based both in western science and on Hawaiian resource management practices. Elements of the management plan includes involving Native Hawaiians in conservation and stewardship work through interactions with cultural practitioners, educators and scholars, kupuna, and lawai'a (fishermen).⁶⁵ This working group assists in providing cultural literacy, history, and traditional resource management strategies.⁶⁶ Interdisciplinary research that brings together marine scientists and Hawaiian cultural experts and fishermen to gather data along complementary knowledge bases (contemporary science with indigenous approaches) is taking place at Papahānaumokuākea.⁶⁷ University of Hawai'i at Hilo students are also being trained to conduct research that incorporates both marine science and traditional Hawaiian practices.⁶⁸ These efforts are geared towards fostering ocean stewardship among the next generation of conservation leaders through environmental education combined with indigenous principles.⁶⁹

⁶² Hawai'i Environmental Education Alliance. *Hawai'i Environmental Literacy Plan DRAFT July 14, 2011*: 3.

⁶³ P. L. Jokiel, K. S. Rodgers, W. J. Walsh, D. A. Polhemus, and T. A. Wilhelm, "Marine resource management in the Hawaiian archipelago: the traditional Hawaiian system in relation to the western approach," *Journal of Marine Biology*, Vol. 2011, p. 12.

⁶⁴ *Id.*

⁶⁵ *Id.*

⁶⁶ *Id.*

⁶⁷ *Id.*

⁶⁸ *Id.* at 13.

⁶⁹ *Id.* at 13.

➤ **Education, Culture, and Citizen Participation**

A positive trend over the last two decades has been the creation of public-private partnerships for native species protection, watershed restoration, and other resource management functions.⁷⁰ Several alliances between governmental agencies, private landowners, environmental and Hawaiian organizations have formed and proven instrumental in driving conservation policies and implementing initiatives. Some of these partnerships include:

- The Hawai'i Conservation Alliance (HCA) comprised of 15 federal, state, Hawaiian, and non-profit entities engaged in stewardship and conservation work. HCA assisted in the drafting of the Hawai'i Statewide Assessment of Forest Conditions and Resource Strategies and is working with the United States Fish and Wildlife Service to help create a new Landscape Conservation Cooperative for the Pacific Islands region.⁷¹
- The Watershed Partnerships between government and private landowners dedicated to restoring the aquifer and streams on privately held lands. With the success of several watershed partnerships, an overall coordinating body was formed among public and private stakeholders to form the Hawaii Association of Watershed Partnerships. This framework has been advantageous in leveraging funding to continue watershed restoration projects.⁷²
- The Hawai'i Invasive Species Council (HISC) addresses the threat of newly introduced invasive species into our State. As a statewide initiative represented by several groups, including the Coordinating Group on Alien Pest Species and county-based Invasive Species Committees, HISC increases its funding muscle and leverages its networks to continue its invasive species control efforts.⁷³
- The Ocean Resources Management Plan Working Group consists of representatives from all levels of government as well as private and non-profit organizations involved in the management and use of Hawai'i's ocean resources.⁷⁴

In June 2007, the Hawai'i State Legislature passed Act 212, the purpose of which was to re-initiate the ancient Hawaiian 'Aha Kiole system whereby best practices based on indigenous resource management by ahupua'a and moku (regions/districts) on each island would be

⁷⁰ State of Hawai'i Department of Land and Natural Resources Division of Forestry and Wildlife. *Hawai'i Statewide Assessment of Forest Conditions and Trends: 2010 An Assessment of the State of Our 'Āina* State Forester Paul J. Conry and Forester Ronald Cannarella. June 18, 2010: 54.

⁷¹ Id.

⁷² Id.

⁷³ Id. at 55

⁷⁴ Id. at 55.

identified. The ‘Aha Kiole advisory committee is comprised of representatives in Hawaiian traditional resource management from each of the eight islands who serve to advise the State on natural resource management issues. Each island has designated representatives by moku and ahupua‘a to develop and engage in a community consultation process among those residing in their respective ahupua`a and moku. These representatives are recognized by their communities as expert traditional practitioners with knowledge of fishing, farming, land, water, and ocean management passed down inter-generationally from their kūpuna. This process is designed to engage community from the bottom-up and consult local expertise in the management of resources. Communities are encouraged under this system to aid in the inventory of natural resources in their respective areas and prioritize them, monitor the natural resources, and suggest customized rules and regulations, standards, and codes of conduct for resource management, which is then transmitted to the state and county levels of governance as part of the overall management structure.

While the recent Senate Bill 23 – to administratively place the ‘Aha Kiole structure within the Hawai‘i Department of Land and Natural Resources – was vetoed in July 2011 by Governor Abercrombie due to more pressing state fiscal priorities and the need to tighten up some of the outstanding issues related to selection and term limits for ‘Aha Kiole and ‘Aha Moku representatives, this process appears to be working still in an organic way regardless of funding. Much progress has already been made in several island communities to identify their ‘Aha Moku representatives and begin the work of identifying key resource management issues. As of this writing, the island of Moloka‘i is holding several ‘Aha Moku meetings to discuss the impact of cruise ships arriving and developing a framework for responsible tourism that does not impact natural and cultural resources and does not exceed the island's carrying capacity. The State Department of Land & Natural Resources has agreed to work with the ‘Aha Kiole o Moloka‘i to incorporate input and recommendations from residents into a permitting scheme. Likewise, the County has agreed to incorporate comments and recommendations from these discussions into the Moloka‘i Community Plan and Maui County General Plan. Additionally, Moloka‘i residents have consulted with the DLNR regarding concerns about overfishing by escort boats during both the International Men and Women annual canoe races. Residents have been encouraged to utilize the ‘Aha Kiole process to create a proposed Community-Based Traditional Subsistence Fishery designation for the entire island. It is encouraging to see citizen engagement in the management and stewardship of our environment flourishing in many ways and in several venues. These instances of collaborative governance reside at the heart of our democratic society, one that is of the people and representative of the people.

We can always work at improving civic engagement in protecting Hawai‘i’s precious resources and ecosystem. Another strategy that has arisen to address the root issues in society’s ability (or lack thereof) to *care about* and thereby collectively *care for* Hawai‘i’s future is fostering environmental literacy from an early age into adulthood. Governor Abercrombie has stated clearly in “A New Day in Hawai‘i” the importance of fostering environmental literacy in our schools from a young age:

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*We need children to think critically about their place in the ecosystem ... school-based programs are particularly critical so that all children of Hawai'i have a better understanding of their environment, food, nutrition, and culture.*⁷⁵

Over the period of a decade of public surveys, it was determined by the National Environmental Education and Training Foundation (NEETF) that the “average American adult, regardless of age, income, or level of education, mostly fails to grasp essential aspects of environmental science, important cause/effect relationships, or even basic concepts such as runoff pollution, power generation and fuel use, or water flow patterns.”⁷⁶ NEETF also estimated that “only 1 to 2% of adults in America have sufficient environmental knowledge and skill to be considered environmentally literate.”⁷⁷

There are benefits to incorporating environmental education in schools. Applied, experiential learning in a natural setting appeals to students and shows them the relevance of math and science in their lives.⁷⁸ It helps in the development of basic life skills and gives students opportunities to think critically, solve problems, and appreciate various perspectives.⁷⁹ NEETF conducted a nationwide study in 2002 and discovered that 93% of teachers surveyed reported that their students who were enrolled in environment-based programs read and wrote better.⁸⁰ Environmental education has been proven to increase student performance in standardized tests in science, math, social studies, reading, and writing⁸¹ Teachers noticed positive behavior changes in their students, an enthusiasm for learning, and increased initiative and self-motivation.⁸²

The Hawai'i Environmental Education Alliance, in collaboration with the State of Hawai'i Department of Land and Natural Resources, State of Hawai'i Department of Education, and a coalition of educators and representatives from business and community organizations, is developing the Hawai'i Environmental Literacy Plan.⁸³ This plan is in preparation for the imminent passage of the proposed federal legislation called the “No Child Left Inside” (NCLI) Act. Once approved by the United States Congress, the NCLI Act will incorporate for the first time environmental education as part of the curriculum. This will clear the way for outdoor and service learning activities, Science Technology Engineering and Math integration, and career pathways preparation. The Hawai'i Environmental Literacy Plan will

⁷⁵ Hawai'i Environmental Education Alliance. *Hawai'i Environmental Literacy Plan DRAFT* July 14, 2011: 8.

⁷⁶ *Id.* at 5.

⁷⁷ *Id.* at 5-6.

⁷⁸ *Id.* at 20.

⁷⁹ *Id.* at 5.

⁸⁰ *Id.* at 19.

⁸¹ *Id.* at 5.

⁸² *Id.* at 5.

⁸³ *Id.* at 10.

enable the State to access new funding available through the NCLI Act to implement environmental education in all public schools statewide.

One of the goals and strategies identified in the Hawai'i Environmental Literacy Plan include K-12 environmental education integration through utilizing place-based science, community-based education, and environmental health activities that reach underserved communities.⁸⁴ Activities will be geared towards connecting students to nature in a real way; supporting school garden programs; and partnering with university faculty and graduate students to mentor youth in real-life research projects.⁸⁵ The plan also considers increasing access to green/sustainability career education that links agriculture, natural resources management, alternative energy, STEM, environmental health, etc. to career pathways.⁸⁶ Another strategy is to improve teacher access to environmental education resources.⁸⁷

What is evident in these efforts to increase environmental literacy statewide, incorporate indigenous knowledge and a local governance framework into the management of natural resources, and increasing citizen engagement through public and private partnerships and collaborations is that no one strategy works in isolation. No one entity can do everything. Yet together, we can achieve sustainability.

➤ **Economic Development**

One way to understand the economic benefits accrued to maintaining the quality of Hawai'i's natural environment is to consider the ecosystem services and goods provided that keep Hawai'i Hawai'i. The goods and services provided by our native plants, wildlife, and ecosystems include the air we breathe, water quality and quantity, fertile soils, the most envied climate in the world, carbon storage, and food and medicinal resources. A University of Hawai'i study estimated the value of services provided by O'ahu's Ko'olau mountains alone as between \$7.4 billion to \$14 billion.⁸⁸ Additionally, the beauty and the richness of Hawai'i's natural vistas, native wildlife, and warm waters and coral reefs significantly contribute to our \$10 billion tourism industry.⁸⁹

There are also economic opportunities that come with State initiatives on track with worldwide trends to adopt sustainable strategies that increase local food security, fuel and energy security, and to reverse and adapt to global climate change. The State of Hawai'i

⁸⁴ Id. at 67.

⁸⁵ Id. at 67.

⁸⁶ Id. at 67-68.

⁸⁷ Id. at 68.

⁸⁸ State of Hawai'i Department of Land and Natural Resources Division of Forestry and Wildlife. *Hawai'i Statewide Assessment of Forest Conditions and Trends: 2010 An Assessment of the State of Our 'Āina* State Forester Paul J. Conry and Forester Ronald Cannarella. June 18, 2010: 156.

⁸⁹ Id.

Department of Labor and Industrial Relations submitted a report on Hawai'i's Green Workforce in 2010. Some of the findings from the report show that:

- ❖ Green jobs in Hawai'i account for 2.4% of total private employment across 19 major industry groups such as construction, professional services, administrative and support work, and waste management and remediation.
- ❖ There are approximately 670 current green job vacancies (1.5% of Hawai'i's total unemployment), particularly in construction, agriculture, and professional services.
- ❖ Businesses anticipate that green occupations will grow faster than Hawai'i's overall job market to account for an estimated 2.9 percent of total employment.
- ❖ Community colleges and vocational schools meet 62% of the education and training criteria for reported green jobs. One such important certification is Leadership in Energy and Environmental Design.

Green jobs are found in five core areas: (1) generating clean, renewable, sustainable energy; (2) reducing pollution and waste, conserving natural resources, and recycling; (3) energy efficiency; (4) education, training and support of a green workforce; and (5) natural, environmentally-friendly production.⁹⁰

In anticipation of exponential growth and new opportunities in the green sector, priority should be placed on the education and preparation of Hawai'i's people for career pathways in environmental work and sustainable industries as a way to leverage both effective stewardship of our resources and building a strong state economy. Both endeavors involve the *oikos* (eco), the home. One entails careful study of the home and its functions (ecology), the other is the management (economy) of the home, our planet Earth. The two go hand in hand.

⁹⁰ Hawai'i State Department of Labor and Industrial Relations Research & Statistics Office. *Hawai'i's Green Workforce – A Baseline Assessment*. December 2010: 5.

Looking Ahead: A Call to Action For “A New Day”

6

Summary and Conclusions

The Environmental Council is hard at work to sustain our Hawai'i for future generations. A collective call to action drives the volunteer council members to work together to address the challenges ahead.

Environmental Council accomplishments in 2011 include:

- ❖ The identification of key initiatives:
 - ✓ A 5-year plan to update of Hawai'i Administrative Rules Chapters 11-200 and 11-201
 - ✓ Working closely with the Hawai'i State Legislature on legislative issues
 - ✓ Working with state and county agencies on updating and creating new exemption lists
- ❖ A reestablished partnership and collaboration with the University of Hawai'i Environmental Center
- ❖ Successful and well-attended training and outreach sessions conducted by the Office of Environmental Quality Control throughout the state

Environmental Council challenges ahead include:

- ❖ Focused efforts to assist in responsiveness and streamlining of the environmental review process
- ❖ A strong working relationship with state and local agencies to work toward the State's environmental sustainability goals
- ❖ Increased citizen participation in the environmental review process

We welcome the opportunity to meet these challenges and support a strong environmentally sustainable Hawai'i.

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The Environmental Council is very grateful to the following individuals, whose tireless and energetic work made this annual report possible.

- ❖ Environmental Council members Malia Akutagawa, Iris Terashima, and OEQC intern Stacey Chaussoy worked in partnership to produce the 2011 Annual Report. The team spent countless hours collecting data, fact-checking, and capturing the issues, challenges, and accomplishments of the OEQC and Environmental Council.
- ❖ OEQC Director Gary Hooser, Environmental Council Chair Mary Steiner, and members of the Environmental Council volunteered their time, and more importantly, shared their vision to collaborate on this report.
- ❖ Environmental Council member Marjorie Ziegler coordinated the contributions of photographers, who generously shared their images in this report.
- ❖ Genevieve Salmonson, Environmental Ombudsman of the State of Hawai'i Department of Health provided a wealth of information captured in the data and graphs from 2011 environmental indicators.