

End of Year Report

Fiscal Year 2006

State of Hawaii / Department of Health / Clean Water Branch Polluted Runoff Control Program

October 1, 2005 – September 30, 2006

The Watershed Approach

Watershed Based Plans are still the key to unlocking funding for the abatement and control of nonpoint source pollution as well as the most promising mechanism to integrate necessary implementation tools to achieve actual water quality improvements. There are currently three completed watershed-based plans which address EPA requirements. In addition to the previously completed plan for the Nawiliwili Bay watersheds, plans for Kapakahi Stream and Kahoolawe were completed in FY2006. These watersheds are now eligible for Clean Water Act, Section 319(h) funds to support projects identified in the watershed-based plan that address nonpoint source pollution problems.

Watershed-based plans are in the process of being developed for the Koolaupoko watersheds (windward Oahu), South Molokai, Waikoloa-Waiulaula (Hawaii island). All of these efforts should be completed by the end of calendar year 2007. These plans are anticipated to provide a foundation to address polluted runoff issues and achieve water quality improvements.

In FY2006, a project with the University of Hawaii to develop background files on seven priority watersheds (identified through the Unified Watershed Assessment) was completed. It was anticipated that local organizations/watershed groups would use this background file information as the basis for watershed based plans. While the project did result in the compilation of a variety of watershed data, there was very little analysis conducted to assist with watershed plan development. This contract also included the development of a watershed based plan for the Hilo Bay watershed. While the Hilo Bay watershed based plan is certainly a start and does identify some opportunities to improve water quality, there was either not adequate data or data analysis conducted to provide a strong enough foundation for a watershed-based plan that addresses all of the EPA requirements.

In order to improve the likelihood of actually achieving water quality improvements, the PRC Program decided in FY2006 to focus efforts project efforts in a limited number of watersheds. These watersheds were selected based upon several criteria. These include: the existence of a watershed-based plan and/or Total Maximum Daily Load (TMDL), previous planning and/or implementation activities intended to address water quality problems, priority watersheds of a complementary effort and a watershed organization or other entity capable of undertaking or leading implementation efforts in the watershed. The watersheds include: Hanalei Bay, Nawiliwili, Kapakahi, Waimanalo, Koolaupoko, South Molokai, West Maui (Honolua Bay), Waiulaula-Waikoloa, and Hilo Bay. In addition to these watersheds,

the program is also actively working to get engaged with other efforts such as the Hawaii Association of Watershed Partnerships and benefit from the interest and state funding associated with each of these efforts. This has led to the identification of several priority watersheds and a focus on efforts which involve multiple agencies and organizations (such as the Land Based Pollution Local Action Strategy to Protect Coral Reefs).

The State continues to look for opportunities to integrate watershed-related activities with the water quality and watershed-oriented programs and activities of other state, local and nonprofit partners. The PRC Program participates with other local, state, federal and nongovernmental agencies on a variety of committees (Hawaii Association of Conservation Districts technical committee on polluted runoff, Land Based Pollution Local Action Strategy (LAS) to Protect Coral Reefs, state/federal Conservation Funders, NRCS state technical committee). The PRC Program utilizes these opportunities to coordinate potential watershed planning and implementation activities, maximize the use of limited resources to support watershed projects and avoid duplication of effort. Here are a few highlights that have resulted from these partnerships:

- Leveraged the financial resources of a partner (NOAA) through the Land Based Pollution LAS to provide Center for Watershed Protection training to assist the South Molokai watershed effort and stormwater technical assistance to Maui County.
- NOAA-Pacific Services Center has agreed to provide assistance to the Waiulaula-Waikoloa watershed for the N-SPECT watershed model.
- Initiated discussions with Land Based Pollution LAS priority watersheds and possible Section 319 implementation projects (Hanalei and West Maui). To date no new projects have been initiated with Section 319 funding.
- Initiated contact with Department of Land and Natural Resources staff that coordinates the Hawaii Association of Watershed Partnerships to exchange program information. Efforts continue in hopes of identifying opportunities to utilize Section 319 funding to support these efforts where there is overlap with PRC Program interest.
- Utilized contract for conservation specialists with the Soil and Water Conservation Districts to include efforts related to the development and implementation of watershed-based plans.
- Participated in process to identify priority watersheds with the Hawaii Association of Conservation Districts for interagency coordination to improve water quality.

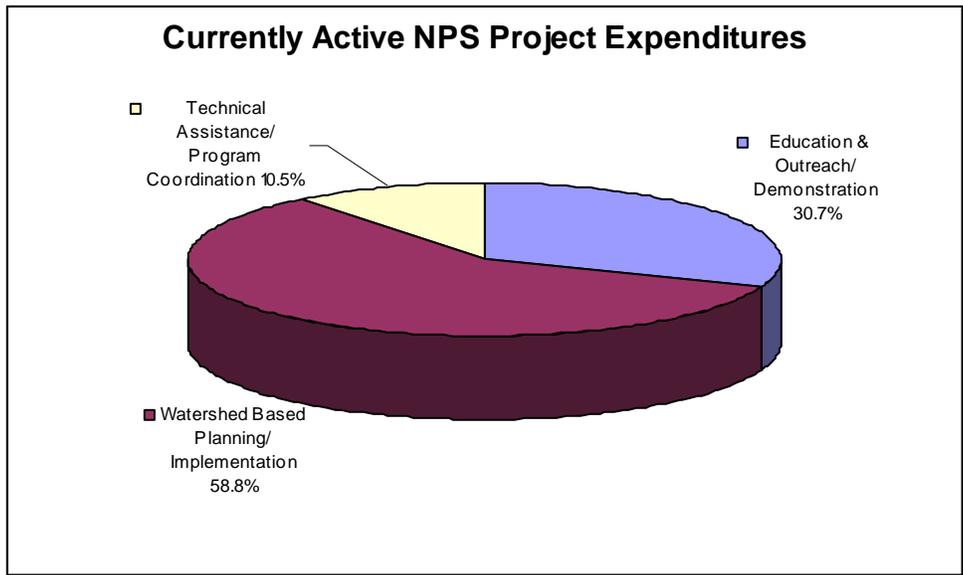
PRC Program coordination within DOH includes the development and implementation of total maximum daily loads (TMDLs) and coordination with the ambient monitoring program to assist in determining the effectiveness of implementation projects. Unfortunately, there were no new TMDLs drafted in FY2006 but there are several TMDLs scheduled for completion in FY2007 and the PRC Program will most likely participate in the TMDL public meeting to gauge interest in implementation efforts.

Hawaii's Polluted Runoff Control Program

Current staff includes Lawana Collier, Public Participation Coordinator, Brian Hunter, Planner, and Hudson Slay, on detail from EPA Region 4. The program is currently in the process of filling two vacancies, the Grants Management Specialist and the Environmental Health Specialist.

The Polluted Runoff Control (PRC) Program utilizes Clean Water Act Section 319(h) funding to address the State's nonpoint source pollution issues. In fiscal year 2006 the State of Hawaii received \$1,525,100 from EPA.

Six (6) new project contracts were executed this year (amount?) and added to the eight (8) ongoing projects under the program's management. Thirteen (13) projects were completed and final reports are available at the PRC Program office.



An analysis of program expenditures reflects the importance and emphasis that is placed on watershed based planning and implementation projects. As previously mentioned, there is a growing recognition among state agencies, local governments and community organizations of the value of watershed planning and management in protecting Hawaii's water resources.

Projects Initiated in FY2006

Six new projects were contracted this fiscal year. It should be noted that these projects were selected from a Request for Proposals (RFP) issued in August 2005 yet many of the project contractors were not provided with a Notice to Proceed until Summer 2006. This was a result of DOH/EPA negotiations but also due to administrative processing time at both DOH and EPA. The delay created significant problems for the contractors and makes the program less appealing to potential project applicants. Efforts are underway to determine if

it is possible to streamline some of the administrative process within DOH and discussions will be held with EPA to determine the most efficient and effective manner to process the workplan and grant application.

Kalihi Ahupua'a Community Service Project

Contractor: Kalihi Ahupua'a Ulu Pono Ahahui

Contract Amount: \$228, 856 (from State's Fiscal Year 2006 Grant)

Start Date: Contract to be executed

End Date:

Expected Outcome: The improvement of water quality and biological integrity of Kalihi Stream through pollution prevention and the reduction of pollutant loads through behavior changes associated with public outreach, education and participation activities (along with other initiatives).

Demonstrating Watershed Participatory Assessment and Action

Contractor: University of Hawaii, College of Tropical Agriculture and Human Resources

Contract Amount:\$223,873 (from State's Fiscal Year 2006 and 2001 Grant)

Start Date: 6/30/06

End Date: 6/30/07

Expected Outcome: This project is anticipated to result in the reduction of sediment, nitrogen and phosphorus loadings and improve water quality and habitat in the Kaiaka Bay watershed. The project will engage the residents of the Kaiaka Bay watershed and encourage their participation and action through the selecting and monitoring appropriate best management practices.

Innovations in Stream Phytoremediation and Erosion Control of Degraded Stream Banks

Contractor: Sustainable Resources Group International, Inc.

Contract Amount: \$299,780.88 (from State's Fiscal Year 2006, 2001 and 2002 Grant)

Start Date: 6/27/06

End Date: 6/27/09

Expected Outcome: The project is expected to reduce the amount of sediment generated by streambank erosion and should result in localized improvement in water quality and stream habitat. The project will install coir and locally produced fiber "logs" for toe protection; pre-planted logs and the replacement of alien vegetation that degrades stream habitat with non-invasive natives in the Waimanalo Watershed.

Hawaii Watershed Experience: A Hands-On Elementary Education Program

Contractor: Healthy Hawaii Coalition

Contract Amount: \$30,000 (from State's Fiscal Year 2003 and 2006 Grant)

Start Date: 6/27/06

End Date: 12/27/08

Expected Outcome: This educational program for elementary school children is expected to generate behavior change and result in both habitat and water quality improvements.

Hawaii Youth Conservation Corps

Contractor: Department of Land and Natural Resources

Contract Amount: \$150,000 (from State's Fiscal Year 2001 and 2002 Grant)

Start Date: 4/05/06

End Date: 10/05/07

Expected Outcome: This project will result in the reduction of nonpoint source pollution in watersheds, streams, and coastal areas through field projects in specific sites throughout the Hawaiian islands and also educate Hawaii's youth in caring for and protect Hawaii's natural resources. The funding will support an addition 24 positions with the Hawaii Youth Conservation Corps summer youth program.

Erosion Sedimentation Control Update

Contractor: County of Hawaii

Contract Amount: \$44,000 (from State's Fiscal Year 2001 and 2002 Grant)

Start Date: 5/17/06

End Date: 5/17/07

Expected Outcome: This project will result in a reduction of erosion and sediment delivered to streams and coastal waters by providing more effective erosion and sedimentation control standards and guidelines.

Project Site Visits

In order to monitor progress and develop a better understanding of PRC Program supported projects, staff attempts to visit projects on an annual basis. At a minimum, staff make site visits at the beginning and end of the project. The following is a briefly description of site visits made during FY2006.

Kaha Gardens BMP Park

On January 13, 2006 PRC staff visited the site of the future Kaha Gardens Best Mangement Practices Park. The park will be a demonstration site for homeowners on how to integrate polluted runoff management measures in their own backyards. Construction of the park will be complete by January 2007. BMPs will include: parking lot runoff management measures, native vegetation plantings and xeriscaping, and bank stabilization using geotextile materials.



Kaha Nui Park before installation of Best Management Practices.

Watershed Based Plan for South Molokai

On February 16, 2006 PRC staff attended a workshop presented by the Center for Water Protection (CWP) in collaboration with Land-Based Pollution Local Action Strategy to Protect Coral Reefs and the Molokai Soil and Water Conservation District. Tom Schueler, of the CWP, discussed watershed protection tools that can be applied on Molokai's mostly

undeveloped island. Simple planning methods to forecast the impacts of future land use on coral reef resources were presented along with a series of rapid methods to identify pollution sources and to select appropriate stormwater retrofit, stream repair, reforestation and sediment control projects. The workshop generated a list of next steps with the intention to reduce land-based sources of pollution on Molokai and also developed strategies to implement the island's watershed plan.

Kaho'olawe Island Reserve Commission Restoration Project, Phase II

On September 12, 2006 PRC Staff visited the island of Kaho'olawe to see the work that has been completed there in the past year under the §319 grant that began in August 2005. The Kaho'olawe Island Reserve Commission (KIRC) received \$1,500,000 to develop and implement a Watershed Based Plan for Kaho'olawe. A watershed based plan for Kahoolawe has been recently completed (August 2006). On-site monitoring equipment, including stream gages located in Hakioawa and Kaulana streams have been installed and erosion pins for measuring soil movement have also been installed. Coastal monitoring equipment has been deployed and turbidity data is being collected in near shore areas. In addition to monitoring, the installation of best management practices continues (use of pili grass rolls, native vegetation plantings, irrigation lines, etc) with the assistance of over 25,000 volunteer hours.



From left to right: aerial view of water tanks used for irrigating new plantings; a "pili roll" traps seeds and provides protection for new seedlings; severe erosion and "hardpan" soils continue to present challenges to restoration

Site visits were also made to the following projects (further description of these efforts can be found in the next section, 'Summaries of Completed Projects'):

- Riparian Fencing & Irrigation System with Reclaimed Water
- Controlling Water Contaminants at the Source by Integrated Technologies
- Community Based BMP Model for Watershed Restoration at Pouhala Marsh and the Watershed Based Plan for Kapakahi Stream
- Control of Alien Invasive Species and Trash in Kaelepulu Pond
- Kui A Hookui Streambank Restoration
- Polluted Runoff Control for Waialea Livestock Farm
- Phytoremediation for Kawa Stream

Summaries of Completed Projects

Riparian Fencing & Irrigation System with Reclaimed Water

The Central Maui Soil and Water Conservation District received \$120,000 to support the “TAKO POKE” (Take Action Knowing Outcome Pono O Kohola Eha) project. The purpose of the project was to reduce the amount of sediment delivered to the coastal zone, reduce fire hazards near populated areas, and increase productivity in the pasture land on the island of Maui by using fencing and a reclaimed water irrigation system. During an event in October, where four inches of rain fell within four hours, it was estimated that up to ¼ inch of sediment was trapped throughout the vegetated buffer. It is estimated that 90% of the nitrogen will be removed by this buffer. Bare soil irrigated with the R-1 water began to naturally vegetate and hold soil better than the bare soil area outside the project. The project was initiated in March 2003 and finished in November 2006.



From left to right: Kibei Wastewater Reclamation Facility, Reclaimed Water sign; sprinkler head

Controlling Water Contaminants at the Source by Integrated Technologies

The University of Hawaii received \$153,800 to demonstrate and implement erosion control practices to reduce sediment and pollutant loads, into the surface and ground water resources of the Kaiaka-Waiialua Watershed. Cover cropped areas showed lower runoff and soil loss than non-vegetated areas but no significant trends were observed. Of the three crops used, oats, sun hemp and sudex, the oats reduced runoff and soil loss the most. The project was initiated in October 2003 and was completed in October 2006.



Left-surface runoff was collected to determine which groundcover (oats, sun hemp or sudex) was most effective to reduce soil erosion and nutrient loads; Right- View down slope of the test plot segregated from the field with galvanized divisions.

Kauai County Cesspool Replacement

The County of Kauai received \$200,000 to convert ten large capacity cesspools located at various beach park facilities to septic tank systems in order to reduce ground water and

ocean pollution in the respective impacted area waters. Eleven cesspools at beach park facilities were converted to septic tank systems at a design-build cost of \$420,000. The annual maintenance costs of the new septic tanks should be under \$10,000. The project final report is awaiting water quality monitoring results from the Department of Health. The project was initiated in May 2004 and was completed in November 2006.

Watershed Based Plan for Kapakahi Stream

The Oahu Resource Conservation and Development Council, Inc. received \$66,000 to develop a Watershed Based Plan for Kapakahi Stream on Oahu. This project built upon watershed analysis conducted through the TMDL development process and was linked to a restoration project completed in 2005 in Pouhala Marsh. The Watershed Based Plan was completed in October 2006. The State has reviewed the plan and feels it meets EPA requirements for a Watershed Based Plan. Proposed management measures outlined in the plan include: education-related projects such as storm drain stenciling and school partnerships, programmatic BMPs such as nutrient management planning, trash prevention and cleanup, and structural BMPs such as: filter strips, swales, constructed wetlands, pervious pavement systems, cover crops and riparian habitat buffers. Hard copies of the plan can be requested at the State Clean Water Branch.



Left: Kapakahi Stream is plagued with invasive species and trash; Right: mangroves were cleaned from the perimeter of the site

Control of Alien Invasive Species and Trash in Kaelepulu Pond

The Enchanted Lakes Resident's Association received \$35,300 to support community efforts at clearing storm drain derived debris and invasive mangroves from the Kaelepulu Pond while educating the surrounding grade schools about nonpoint source pollution. The project resulted in the clearing of approximately 2.8 acres of invasive mangroves, provided presentations to elementary schools regarding polluted runoff and developed a website to educate the public about polluted runoff issues.

Community Based BMP Model for Watershed Restoration at Pouhala Marsh

The Hawaii Nature Center received \$120,000 to reduce nonpoint source pollution by implementing a Community-Based Best Management Practice Model for Watershed Restoration for Pouhala Marsh. The project started in June 2003 and was completed in November 2005. **RESULTS???** How many acres restored? Pickleweed removed? Mangrove removed?

Phytoremediation for Eutrophication, Salt Lake

The City and County of Honolulu received \$97,055 to improve water quality in Keehi Lagoon through the installation of floating phytoremediation platform systems in Salt Lake, Oahu, thereby removing nutrients and pollutants, reducing algae growth and siltation, the control of foul odor, and the production of educational workshops. The project started in August 2002, and was completed in December 2005.

Kalihi Community Resource Improvement Stream Project (Phase III)

Hawaii's Thousand Friends received \$34,300 to facilitate the restoration of Kalihi Stream to its former state as an asset to residents and the surrounding community by restoring the stream and riparian area, reducing litter, debris, sediment and nutrient loading, pesticide runoff, back yard agriculture and livestock, street and driveway petroleum runoff through community partnerships, education and awareness. The project began in April 2004 and ended in July 2006.

Tier 2 Statewide Watershed Project

The University of Hawaii, Environmental Center received \$171,322 to improve water quality by preparing Watershed Background Files to facilitate the State's development of Watershed Restoration Plans for each of the seven Category I, Tier 2 watersheds (from the Unified Watershed Assessment). These watersheds include: Hilo, Kahului Harbor, Kihei, Kaiaka-Waialua, Kahana, Hanapepe and Waimea. The final products include a Microsoft Access database with several maps and background data for each watershed. This project also supported the development of a watershed-based plan for the Hilo Bay watershed. The project was initiated in November 2002 and was completed in October 2005.

Heeia Stream Monitoring and Community Education Project

The Friends of Heeia State Park received \$200,000 to prevent and reduce nonpoint source pollution within Kaneohe Bay by revitalizing a section of the Heeia Stream, conduct water quality monitoring in Heeia Stream and Kaneohe Bay, educate the community about the importance of pollution prevention, and provide classes that immerse students and community members in monitoring and restoration activities. The project was initiated in September 2003 and was completed in February 2006.

Puuhonua O Waimanalo Village

The Puuhonua O Waimanalo Village received \$200,000 to prevent and reduce nonpoint source pollution by improving the quality of fresh water systems, environment, and habitats surrounding the project site. The project emphasized the application of Best Management Practices for the mitigation of nonpoint source pollution, control of invasive species and streambank stabilization within the ahupua'a framework, a system which acknowledges and respects the symbiotic and synergistic relationship between the tenants, their respective duties and responsibilities in the ahupua'a, and the 'aina (land). The project began in December 2003 and was finished in January 2006.



Left: Native plants were used along the streambank for stabilization purposes; Right: Community members created a mural depicting ahupua'a management practices.

Polluted Runoff Control for Waialeale Livestock Farm

The University of Hawaii received \$200,000 to prevent and reduce nonpoint source pollution by implementing a best management practice at the Waialeale Livestock Farm to properly control manure and wastewater contaminants from entering into the surface and ground water resources in the Waialeale Coastal Waters on the Island of Oahu. The project included the use of two innovative technologies, “bionest” and “biopottery”, combined with a Best Management Practices plan to treat dairy wastewater and control polluted runoff. The system collected 15–19 m³/day of milk parlor wastewater and animal manures and provided 90–93% total chemical oxygen demand removal, 60.8% ammonia removal, and odor elimination. The treated wastewater was then used for pasture irrigation. The project started in January 2004 and was finished in March 2006.



The reactors (two anaerobic on the left, one aerobic on the right) collect animal wastewater/milking parlor wastewater, provide highly efficient treatment, and allows the water to be reusable for irrigation or flushing.

HACD Water Quality Grant

The Hawaii Association of Conservation Districts received \$45,000 to participate in the Nonpoint Source Pollution Rules Advisory Committee, encourage local and state partnerships for the prevention of NPS pollution, plan and coordinate an interagency water quality training conference. The 2006 Water Quality Conference whose theme was 'Water Quality: My Kuleana', was held at the Honolulu County Club in August and featured several excellent presenters representing PRC Program contractors as well as many other organizations that have taken initiative to address polluted runoff issues.

Two projects faced overwhelming challenges

Phytoremediation for Kawa Stream

Marine Agritech Inc. received \$200,000 from the State's Fiscal Year 2003 grant, to demonstrate ways to improve and maintain water quality in the estuary of Kawa Stream and Kaneohe Bay using Hawaiian native plants on floating phytoremediation platforms to remove excess nutrients from Kawa Stream. On October 25, 2005 an intense storm in the project area caused turbulent, high velocity stream flows in Kawa stream, which resulted in the platforms being damaged, twisted, and dislodged. Some of the platforms were washed out to Kaneohe Bay.



Photos of the platforms before the October storm event.



Photos of the platforms taken after the storm.

The platforms were removed and the project terminated in November 2006. A lesson learned from this project is that while this phytoremediation technology may be effective in removing sediment and nutrients from streams, it may be better suited for stable flow streams rather than flashy streams with unpredictable high flow peaks.

Kui A Hookui Streambank Restoration

Hui Ku Maoli Ola Native Hawaiian Plants Specialists received \$200,000 from the State's Fiscal Year 2001 grant, to improve the water quality of Waimanalo Stream and Kaneohe Bay by reducing high levels of nitrates in Waimanalo Stream and reducing sediment loads associated with eroding stream banks. The project began in September 2003 and began with recruitment of volunteers to assist in plant propagation, clearing of vegetation, and preparation of the project site. Because the project site was on State owned property, to complete the project, Hui Ku Maoli Ola needed to obtain a "Right-of-Entry" permit from the State Department of Land and Natural Resources. Unfortunately, Hui Ku Maoli Ola was not granted this permit because of concerns over long term maintenance of the native plants. The contract was terminated and left incomplete in September 2006.

State approaches full approval of CNPCP

A total of 70 Coastal Nonpoint Pollution Control Program (CNPCP) elements were presented in June 1996 for approval by NOAA and EPA in the Hawaii Coastal Nonpoint Pollution Control Program: Management Plan, including 57 management measures and 13 administrative elements. Initial approvals were given in the Findings for Hawaii's Coastal Nonpoint Pollution Control Program document (June 1998), which also contained conditions for the non-approvable elements. "Interim decision documents" are the tools used by the federal agencies when specific conditions are met.

At this time, nearly all management measures have been resubmitted for review/approval by EPA and NOAA. EPA and NOAA have provided comments and suggested recommendations for several of these management measures that would increase the likelihood of approval (this includes the agriculture management measures for nutrient management, erosion and sediment control, and grazing). One management measure that has not been resubmitted and is under DOH responsibility is the Onsite Disposal (OSDS) Management Measure. At this time, there are several DOH efforts underway to address the water quality impacts of onsite wastewater systems. A description of activities related to this management measure during FY2006 is provided below.

Onsite Disposal System (OSDS) Management Measure

NOAA and EPA in their 1998 findings found that Hawaii's program includes management measures for new and operating onsite disposal systems (OSDS) in conformity with the 6217(g) Guidance and enforceable policies and mechanisms to ensure implementation throughout the 6217 management area, except for: 1) requirements for denitrifying OSDS, where applicable; and, 2) a program that ensures inspection of OSDS at a frequency adequate to ascertain system failure.

Based upon the January 2006 discussions with EPA, a strategy has been developed to highlight the direction of State efforts and activities that will be implemented to address the OSDS management measure conditions but also assist with broader onsite wastewater issues. The strategy outlines a mechanism to require upgrade to denitrifying OSDS (when necessary), information to document the restriction and elimination of new cesspools, and a coordinated approach to address the inspection of operating OSDS. Several activities have been initiated to assist with the management of onsite wastewater systems and address the management measure conditions. These include:

- The development of an 'inventory' of wastewater disposal/treatment method by parcel utilizing available GIS data layers (this effort is currently underway).
- Conversion (scanning) of DOH Waste Water Branch cesspool cards into an electronic format (this effort is currently underway and 1/2 of Oahu cards have been scanned; PRC Program is providing funding support).
- To refine the ability of the DOH BEACH monitoring in detecting wastewater and nutrient problems, the Monitoring Section has initiated a \$150,000 contract with the U.S. Geological Survey (USGS) in developing a "Wastewater and Nutrient Source Tracking Methodology" for beach and watershed

monitoring. This project is intended to refine the ability of BEACH monitoring to detect wastewater and nutrient problems.

- DOH (Polluted Runoff Control and Waste Water Branch) is currently providing technical assistance to the Hawaii Coastal Zone Management (CZM) Program on a \$75,000 project funded by CZM to provide information to promote the effective use of onsite wastewater treatment systems in rural and urban settings. The project is being conducted by the University of Hawaii-Water Resources Research Institute and its purpose is to enable the use of effective onsite wastewater treatment systems in rural and urban setting in Hawaii and to ensure that the technology is protective of water quality and the environment. The information from this project may be useful in modifying the State wastewater regulations with respect to onsite treatment technology.
- DOH will participate in an onsite wastewater system track at the upcoming Hawaii Water Environment Association (HWEA) conference in February 2007. The purpose of will be to discuss operation, maintenance and inspection of onsite wastewater systems. DOH will use this opportunity to gather information and ideas about new approaches to address these issues.

Once the elements outlined in the strategy (including those listed above) have been either initiated or completed and will assist in demonstrating that these elements will address the management measure conditions the State will submit a revised management measure to EPA and NOAA.

Monitoring

Monitoring is a critical component of the PRC Program since it is the foundation for determining the results of Program investments. All projects funded by the PRC Program are required to have a monitoring/evaluation component to determine project success and the impact on water quality. The approaches vary depending upon the nature of the project but specific water quality monitoring for appropriate pollutants of concern is preferred and will be required of all projects in the future. During FY2006, the PRC Program initiated discussions with the Clean Water Branch-Monitoring Section concerning additional water quality monitoring in several watersheds. The intent of the monitoring is to assist with determining load reductions and water quality improvement as a result of Section 319 funded projects. In FY2007, the Monitoring Section has agreed to expand monitoring efforts at several BEACH (Beaches Environmental Assessment and Coastal Health) monitoring sites in watersheds with PRC Program interest (either priority watershed or project(s) in watershed) to include laboratory analysis for nutrients and turbidity. Section 319 funds were used to purchase addition laboratory equipment to support the nutrient analysis. In FY2007, there will be additional discussions the Monitoring Section regarding the possibility of more intensive water quality monitoring to determine water quality status and links to implementation efforts in priority watersheds.

Apoha continues NPS education efforts



The PRC Program continues to educate people of all ages on the dangers of nonpoint source pollution and on the simple behavior changes individuals can make to help prevent nonpoint source pollution. Through the use of coloring books, brochures and our informational souvenir picture frames, the program is able to share information with thousands of Hawaii residents each year.

Lack of available staff makes it difficult to continue school presentations. Recently the Hawaii Association of Conservation Districts Executive Director and the Oahu Conservation Specialist assisted the PRC Program at a school presentation and they intend to continue to provide outreach assistance for the program in the future.

Training

Geographic Information Systems (ArcGIS)

PRC Program staff participated in a 2-day Geographic Information System (GIS) training workshop (Introduction to ArcGIS I) along with staff from the Clean Water Branch, Monitoring Section. The course provided a hands-on introduction to the ArcGIS software allowing participants to explore a variety of GIS concepts such as displaying, editing, and presenting spatial data as well as querying databases. Familiarity with this technology and software will allow staff to use these tools to implement many aspects of the polluted runoff control program and also provide a greater understanding of efforts by project contractors.

2006 National Nonpoint Source Coordinators' Meeting

Denis Lau and Hudson Slay represented the PRC Program at the National Nonpoint Source Coordinator's meeting held in Park City, Utah from June 19-22. There were several topics of interest to the program which include: watershed planning and EPA requirements, integrating nonpoint source monitoring with state comprehensive monitoring, outreach and social marketing, and the coastal nonpoint pollution program.

14th National Nonpoint Source Monitoring Workshop

Tamara Wilbourn represented the PRC program at the 14th National Nonpoint Source Monitoring Workshop, which was held in Minneapolis, Minnesota from September 25-28. Themes of the conference included workshops and presentations on: Detecting Change in Water Quality from BMP Implementation, Innovative Monitoring in Agricultural and Urban Landscapes, Design and Calibration for Detecting Change in Water Quality and Modeling Applications for Nonpoint Source Pollution and Control Strategies.