NOAA Coral Reef Conservation Program
Final Report

I. Project Information

A. NOAA Grant Number: NA11NOS4820006

B. Project Title: South Kohala Stream Corridor Assessment, Erosion Monitoring, and Recommendations

C. PI and Staff: Sustainable Resources Group Intn'l, Inc. (Andy Hood)

D. Award Period: October 25,2013 – September 30, 2014

E. Award Amount: $45,200

II. Executive Summary

South Kohala is a Hawai‘i Coral Reef Strategy priority watershed, targeted for implementation of specific ridge-to-reef management activities. Off-shore waters (Wai‘ula‘ula marine segment) are listed as impaired on the latest Hawaii State Clean Water Act 303(d) listing of impaired waters for several pollutants. Sediment loads attributed to accelerated rates of erosion sourced to upland areas and stream banks have been identified as a stressor to nearshore waters. Information in the *Pelekane Bay Watershed Management Plan* and the *Wai‘ula‘ula Watershed Management Plan* provided a starting point for this project.

An inventory and assessment was conducted in Wai‘ula‘ula Watershed to document the location, extent, and cause of relative sediment, nutrient, and toxicant-load contributions from erosion along the various channels of the stream and gulches, and to a limited extent adjacent lands. A key element of the assessment was observation of land uses and conditions, such as ground cover, which when coupled with professional judgment, was used to identify sediment sources and make inferences with respect to nutrient and toxicant sources. This Stream Corridor Assessment (SCA) provides geo-located, site-specific information on problem areas and solutions to reduce erosion rates. A SCA is a tool that can help identify stream and associated riparian areas that require restoration, and help prioritize critical areas. Establishing an erosion monitoring program that can provide trend data for select sites over the long-term will provide information on rates of erosion and can be used to help evaluate effectiveness of implemented management practices. Identifying management actions to reduce erosion will allow implementation of projects aimed at reducing delivery of sediment and associated pollutants to coral reefs.

III. Purpose

A. Management problem addressed

The SCA was used to identify “hotspots” and areas that have the best potential for reducing sediment loads into the channels and subsequently into the near shore waters. Following these recommendations, and addressing identified stream bank erosion hotspots, should reduce their contribution to the sediment loads off Wai‘ula‘ula Watershed.

B. Overarching goal(s) and objective(s) of the project

Goal: Identify areas to target for installation of management practices to reduce erosion rates to reduce stress on nearshore waters.

Objective 1: Assess the condition of eroding streambanks in the agriculture, rural and urban zones of Waiʻulaʻula Watershed

Objective 2: Identify sites for installation and assignment of practice types for issues to be remediated

Objective 3: Create erosion monitoring plan

Objective 4: Install erosion pins and monitor sites

Objective 5: Propose riparian zone overlays for consideration by Hawaii County

Objective 6: Prioritize management actions for streambank stabilization and restoration based on field work and erosion monitoring

Objective 7: Increase stakeholder's awareness and understanding of erosion and reducing sediment delivery to reefs.

IV. Approach

A. Detailed description of the work that was performed (by objective)

Objective 1: Assess the condition of eroding streambanks in the agriculture, rural and urban zones of Waiʻulaʻula Watershed

SRGII conducted fieldwork in January and August 2014. Field work included walking along primary stream/gulches to assess channel stability and identify locations of sediment inputs, eroding banks, and stream diversions. Portions of the subwatersheds draining into the primarily stream and gulches were assessed to locate source areas of sediments and other land based pollutants that would be delivered into the waterways under overland flow conditions. Visual assessment of the hydrology of streams and gulches was also conducted.

Objective 2: Identify sites for installation and assignment of practice types for issues to be remediated

Specific sites including segments of stream and gulch banks were identified for remedial actions in the SCA Report (Appendix B). Recommendations include installation of best management practices and changes in land use management where current practices are contributing to adverse issues at the sites. Several of the identified sites were included in a successful funding proposal to the State Department of Health prepared by the Coordinator.

Objective 3: Create erosion monitoring plan

A monitoring plan is included in the SCA Report (Appendix C). Recommended monitoring frequency of erosion pins is at six month intervals. Monitoring will consist of locating pins, duplicating photographs collected at pin installation, and measuring the vertical straight line distance from the top of pin to the ground surface.

Objective 4: Install erosion pins and monitor sites

Erosion pins were installed at eight locations along the stream channel and at several upland/out-of-channel locations. Few changes were recorded during the duration of this project. Results are documented in the SCA report (Section 3 and Appendix C).

Objective 5: Propose riparian zone overlays for consideration by Hawaii County

Riparian corridors were assessed as part of the field work to evaluate structure and average widths. Recommendations in the SCA Report address riparian and stream corridor buffers (Section 4).

Objective 6: Prioritize management actions for streambank stabilization and restoration based on field work and erosion monitoring

Thirty one sites were identified and prioritized for remedial action based on field work (18 low, 9 medium, 4 high). Details are included in the SCA Report (Section 2 and Appendix C). Additional recommendations, based on field observations are included in Section 5.

Objective 7: Increase stakeholder's awareness and understanding of erosion and reducing sediment delivery to reefs.

SRGII has worked with Coordinator to identify potential projects in the watershed, including identifying landowners and potential project partners. A two page project summary was prepared as part of the Hawaii Coral Reef Strategy to share with interested people.

B. Project management: List of individuals and/or organizations performing the work.

Sustainable Resources Group Intn'l, Inc. served as the project manager and provided technical expertise for this project. The South Kohala Watershed Coordinator assisted in coordinating and identifying potential projects / sites of interest.

V. Results

The project identified discrete locations along streams and other land surfaces that are contributing above background sediment loads. In addition, observations made during field operations identified other non-targeted issues that are generating land based pollutants to various water bodies. Fixing sections where stream bank erosion was determined to be accelerated by anthropogenic activities will be a long-term undertaking. This project addresses the need to identify locations requiring installation of erosion control to minimize contribution of sediment and other non-point source pollutants into waterways. While in progress, the project contributed to selection of sites to be addressed under separate funding for implementation of best management practices. Additional sites to be targeted with future funding are identified. The SCA Report also includes a set of general recommendations related to watershed management in the South Kohala region (Section 5).

VI. Applications

One output of this project is a Stream Corridor Assessment Report that addresses Wai‘ula‘ula Watershed. In addition, recommendations from this project were incorporated into a successful funding proposal (Department of Health 319 funding), which means that several of the recommendations are already targeted for implementation in fiscal year 2015. As the South Kohala Watershed Coordinator continues working in this region, the SCA Report can be used as a template for additional analyses in other watersheds. Land owners are beginning to understand the causal relationship between land use practices and downstream (including coral reef) impacts.

VII. Evaluation

Project goals and objectives were successfully met. Future needs include: expanding geographic area for conducing SCA work; obtaining funding for implementation of recommended projects; and measuring and monitoring for success. See additional details in SCA Report Section 5.

Final Report Prepared by: Sustainable Resources Group Intn'l, Inc. Date submitted: October 8, 2014

Signature of Point of Contact: _____