

The BALANCED Project



MONITORING THE BALANCED PHILIPPINES PROJECT: PROMISING RESULTS AFTER ONLY 18 MONTHS

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Cover Photo Caption: Preparing family meal of oysters, Philippines

Cover Photo Credit: Brandon Elsner

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Executive Summary

The U.S. Agency for International Development (USAID)-supported Building Actors and Leaders for Advancing Community Excellence in Development (BALANCED) Project encourages the adoption and promotion of Population Health and Environment (PHE) approaches and builds the leadership and implementation capacities of national and local governments and stakeholders to respond in an integrated manner to interrelated population, health and marine environmental issues. Since 2010, USAID/Philippines has supported the BALANCED-Philippines Project, which works in two geographic areas: the Danajon Bank (DB) Marine Bioregion in Bohol and the Verde Island Passage (VIP). The combination of population growth/density and biodiversity loss is very much present in these key marine biodiversity areas that are priority locations for coastal resources management (CRM). DB is described as one of only three double-barriers reefs in the Indo-Pacific region, while VIP is considered the “center of the center” of the world’s shore fish diversity (Carpenter and Springer 2005).

This report compares the findings of surveys conducted in 2011 and 2013 to assess the results and impacts of the BALANCED-Philippines Project. The general research questions sought to identify were: positive changes in indicators reflecting Project goals since the Project was initiated; differences in positive change rates in municipalities characterized by different Project activities; and individual (e.g., age, education, gender, Project participation, etc.) and/or socio-demographic factors have influenced changes in Project goal indicators. Data for 2011 were derived from 20 randomly selected communities in different intervention sites. The 2011 data was collected between July and October 2011. In 2013, the team surveyed the same villages, except the municipality of Tingloy, which had dropped out of the Project. Data for 2013 were collected between March and June 2013.

Throughout the Project, BALANCED-Philippines has delivered community-based family planning (CBFP) to municipalities in the DB and VIP with ongoing coastal/fisheries management activities in existing or maintenance¹ sites and new² sites. BALANCED-Philippines provided the full packet of FP/Reproductive Health (RH) services including PHE advocacy; community-based distribution (CBD) system for FP/RH products; peer education (PE) system; contraceptive supply chain; information, education and communication (IEC) that integrated FP and environmental messages; and monitoring. This approach replicated the public-private PHE model that was developed and refined under a previous PHE Project implemented by BALANCED Project partner PATH Foundation Philippines Inc. (PFPI).

The BALANCED-Philippines Project implemented activities to increase policy makers’ commitment to PHE in all municipalities at a policy level rather than at an individual level, which is what the assessment focused on. A select number of communities received support related to marine protected area (MPA) strengthening and fisheries management and livelihoods. For this reason, this report compares primarily the data obtained for FP/RH use and awareness. It is clear that there have been positive changes in knowledge and behaviors over the approximately 18 months from the beginning of the Project until the monitoring exercise was conducted. There have been increases in all the indicators that measured the impacts of

¹ Communities that previously implemented PHE initiatives with RH/FP and CRM activities under previous PHE projects

² Communities with coastal/fisheries management activities that newly received RH/FP interventions

increasing access to and awareness and use of FP/RH services and in all contextual indicators, except for condition of the resources. The decrease in resource condition might be a result of open access fisheries and population growth—the current CRM approaches may not be working or need more intensification to have an impact on fish stocks.

In conclusion, the BALANCED-Philippines Project recommends the following actions for future PHE Projects and activities:

1. Since the positive changes in perceptions and knowledge and FP/RH practice were greater for the new sites than the maintenance sites, the greatest changes may occur in the beginning of an initiative. This indicates that it is worthwhile to expand the PHE approach to work in new sites. However, the findings indicate that the Project is having a consistent effect of slowly increasing the scores on the Project goal indicators examined. Hence, increased efforts in both maintenance and new sites will probably increase the speed and degree of these positive impacts.
2. More attention needs to be given to informing and convincing elders of the positive benefits of FP in dealing with current problems concerning population and the environment. The respect with which they are held in traditional Philippine society could be used to more effectively deliver the PHE message. If they do not understand or disagree with the approach, they could have a negative impact on its implementation.
3. The strong and consistently positive relationship among scores on the six indicator scales and Project knowledge and participation indicates a need to increase both communication with and participation of the target populations.
4. Further analysis should be undertaken to better understand how contextual and individual variables influenced the changes in behaviors and knowledge. It would also be interesting to examine the PHE models used in the different types of sites to assess if certain components were more important than others.

Introduction

In 2010, the USAID/Philippines/Office of Health (OH) and the Office of Energy, Environment and Climate Change (OEECC) provided field support funds to the USAID global BALANCED Project to implement PHE field activities in key marine biodiversity areas in the Philippines. The Coastal Resources Center at the University of Rhode Island (CRC-URI), Path Foundation Philippines Inc. (PFPI), and Conservation International (CI) are the lead implementing agents for the BALANCED-Philippines Project. The Project was implemented in three phases.

- The initial phase with only OH funding—December 2010 to September 2011 (nine months)
- The second phase with overlapping OH and OEECC funding—October 2011 to December 2012 (14 months)
- Final phase with new OH add-on funds to support OH-funded activities that overlap with the OEECC activities—December 2012 to August 2013 (8 months).

The goal of this Project was to build leadership and implementation capacity of national and local governments and stakeholders to respond in an integrated manner to interrelated population, health, and marine environmental issues in the Philippines. The Project was implemented using an integrated PHE approach. This is a community development approach that addresses the inter-relationships between population, health, and environment dynamics in high growth bioregions. PHE works to improve the well-being of people living in critical biodiversity areas and to maintain the health of the ecosystem upon which these people depend for food, income, livelihood and other goods and services.

PHE approaches are well suited to countries such as the Philippines—a country with relatively high rate of population growth and density, both contributing to the loss of biodiversity and ecosystem productivity. The combination of population growth/density and biodiversity loss is very much present in the BALANCED-Philippines Project areas: DB and VIP. DB is described as one of only three double-barriers reefs in the Indo-Pacific region while VIP is considered the “center of the center” of the world’s shore fish diversity (Carpenter and Springer 2005).

The BALANCED-Philippines Project’s goal is supported through activities implemented under five intermediate results (IRs):

1. Improved access to FP/RH services in key bioregions.
2. Increased community awareness and support of FP and conservation as a means to improve health, food security and natural resources.
3. Increased policy makers' commitment to FP/RH services, CRM and integrated policies.
4. Improved governance capacities of provincial and municipal local government unit (LGUs) in the VIP and DB marine ecosystems.
5. Increased incentives for coastal and marine conservation among coastal fisher households.

This report compares the findings of surveys conducted in 2011 and 2013 to assess the results and impacts of the BALANCED-Philippines Project per terms and conditions as approved in the BALANCED Year 5 work plan and Cooperative Agreement No. GPO-A-00-08-00002-00.

The assessment presented in this report looked at all five IRs, with a focus on the first two. That approach was taken because while the Project implemented interventions related to all five IRs, it implemented a consistent package of community-based interventions related only to FP/RH service delivery and PHE awareness raising (IRs 1 and 2) across all Project sites. Activities related to the third IR (increasing policy makers' commitment to PHE) were also implemented in all municipalities, but they were at a policy level, rather than at an individual level (which is what the assessment focused on). In addition, all sites were involved in MPAs and/or fisheries management (supported or not supported by the Project), and PEs delivered IEC messages related to PHE in all sites. A select number of communities received direct support related to MPA strengthening and fisheries management (IR 4) and livelihoods (IR 5). Since MPA support was provided to communities with MPAs that scored low on an MPA management effectiveness assessment and the livelihoods support was provided to communities that scored high on the same assessment, no communities in DB received both MPA and livelihoods support. Some overlap between IR 4 and 5 activities occurred in the VIP.

The Project Sites and Activities

The VIP encompasses 1.14 million³ hectares of critical habitats between the Provinces of Batangas, Oriental Mindoro, Occidental Mindoro, Marinduque and Romblon. A total of 33 municipalities has jurisdiction over VIP and the area has approximately 1.8 million inhabitants (National Statistics Office 2010). The population is projected to increase rapidly in the next 10 years. VIP possesses some of the country's richest fishing waters and tourist destinations, but human activities pose significant threats to marine species and resources. These activities include over-fishing and the use of illegal fishing methods, mangrove harvesting for fish farming, agricultural runoff from pesticides and fertilizers, unsustainable tourism and navigation. These problems are exacerbated by climate change, which is affecting VIP coastal communities and their ability to adapt and manage their fragile resource and economic base.



Map of VIP region

³ <http://www.conservation.org/global/philippines/where/sulu-sulawesi/vip/pages/default.aspx>



The Danajon Double Barrier Reef is located off northern Bohol islands and surrounded by the provinces of Cebu, Leyte and Southern Leyte. There are 16 municipalities and three cities within four provinces and two administrative regions⁴ that have direct jurisdiction over the DB. The overall area of the DB is 272 km² with an aggregate coastline of 699 km, including 40 islands (CRMP 2000). Fish abundance is very low in the area, especially within the in-shore waters. The main threats to the reef systems are considered to be from illegal and destructive fishing and sedimentation, whereas the mangroves have been degraded due to conversion to fish ponds, cutting for fuel wood and construction materials. Sedimentation has steadily increased in recent years as land use has intensified. This is caused by the high-density settlement that exists in

almost all the outlying municipalities in the DB. The high population density means that most lands and mangrove forest have been converted to other purposes. The loss of mangroves reduces critical nursery habitat and shoreline resilience to erosion and storms. All this has contributed to the increase of pollution load in the DB. Other indirect threats, such as high fertility, migration, dependence on natural resources for livelihood, etc. are also related to the high population densities and high levels of poverty in Bohol and surrounding provinces (Armada et al 2009).

During the first year the BALANCED-Philippines Project used USAID/OH funds to bring CBFM to eight municipalities in the VIP where ongoing coastal/fisheries management activities had yet to be integrated with RH/FP (called **new** sites) and 20 municipalities in the VIP and DB to improve and maintain PHE initiatives that were implemented under previous PHE projects (called **maintenance** sites).

The eight **new** sites in the VIP bioregion contained 206 coastal barangays where an estimated 33,641 women with unmet FP need reside. In these sites, BALANCED- Philippines provided the full packet of FP/RH services including PHE advocacy; CBD system; PE system; contraceptive supply chain; information, education and communication (IEC) that integrated FP and environmental messages; and monitoring. This approach replicated the public-private PHE model (CBD through LGUs and social marketing of FP methods and PHE concepts) that was developed and refined under PFPI's previous Poverty, Population, Environment (PPE) Project. The BALANCED-Philippines also invested moderate resources in activities to strengthen the functionality and sustainability of existing CBD operations/systems established previously by PFPI's IPOPCORM Project in 20 coastal municipalities in both the South Sea and Visayan bioregions, referred to as **maintenance** sites. Those CBD systems were designed to serve 510 coastal barangays where 54,996 women of reproductive age (WRA) are estimated to have unmet need for FP services. Because some of the CBD agents had discontinued their operations, the Project conducted a needs assessment for these CBDs and extended tailored technical assistance

⁴ In Region 7 (Central Visayas), 10 municipalities in Bohol and two in Cebu; In Region 8 (Eastern Visayas), six municipalities in Leyte Province and one in Southern Leyte

(based on assessment findings) and periodic monitoring/mentoring support towards reviving the PEs and CBDs commitment to continue to operational the CBD system in their own areas.

While CBDs and adult PEs have been trained for all Project communities, there are some variations across the municipalities involved in the Project. For example, the composition of the volunteer PEs and CBDs varied between the DB and the VIP. In the DB, most of the volunteers were barangay health workers or in other ways associated with the formal health sector. In the VIP, the volunteers had more diverse backgrounds and included Bantay Dagat, members of Barangay Fisheries and Aquatic Resources Management Councils, people's organizations and barangay officials. These variations can be considered as experimental innovations which may have impact on the bottom line—changes in behavior and knowledge of coastal residents in the Project areas.

CRM activities, which began in year 2 of the Project, were focused in a subset of the **new** and **maintenance** site municipalities where FP/RH activities were occurring. In the DB region, CRM activities were limited to Bohol Province, and the livelihood component was concentrated in six MPAs under the jurisdiction of four municipalities (Clarin, Inabanga, Pres Carlos P. Garcia and Buena Vista). In the VIP region, activities were concentrated in Batangas, Occidental Mindoro and Oriental Mindoro Provinces. There were four components to the CRM activities: 1) strengthening MPAs and MPA networks; 2) strengthening enforcement and Bantay Dagat networks; 3) initiating fisheries management measures that will contribute to strengthening MPAs; and 4) promoting diversified livelihoods for fishing families in communities engaged in good marine conservation practices. Fisheries management was focused in the Lubang Island Group (LIG) and livelihood components in LIG and Oriental Mindoro given the short time frame and limited budget for these activities.

CBD Models

A goal of the Project was for LGUs to manage and sustain a network of barangay/village based CBDs, which are extension outlets of their Rural Health Units (RHUs). The RHUs were expected to supervise and support both PEs and CBDs and to regularly supply FP methods to CBDs. However, the level of LGU support and/or resources varied per site. In the end, 15 municipal LGUs and six barangays provided funds to purchase FP communities for their CBDs. Fifteen agreements were also executed between private sector outlets and LGUs to ensure steady supply of contraceptives to the system. Private sector partnerships were particularly important in **new** Project sites in the provinces of Batangas and Occidental Mindoro, where it was difficult for the RHUs to supply the CBDs. In cases where CBDs were trained but lacked access to pills and condoms to distribute/sell and/or the funds to purchase their first supply, PFPI dispatched CBD kits⁵ to the CBDs to jump-start distribution of contraceptives and social marketing.

These different FP supply mechanisms led to the emergence of two basic CBD models during the operationalization of the BALANCED-Philippines CBD system. Table 1 below lists the characteristics of these two models. Table 2 (Distribution of Sample per Community) shows type of CBD model per Project site.

⁵ Composed of 10 cycles of pills, five packs of condoms (three per pack), a ledger for reporting, IEC materials (three Tips), a ballpoint pen, reporting forms, and a plastic container that can carry all of the said materials

Table 1: Characteristics of BALANCED-Philippines CBD Models

If RHU:	And RHU is:	Then	Model
Has FP supplies (from LGU funding, Provincial Health Office (PHO), donors, etc.)	<ul style="list-style-type: none"> • Willing and able to supply CBDs with FP supplies; • Willing to supervise CBDs and PEs ; and • Willing to service referrals from PEs and CBDs 	<ul style="list-style-type: none"> • Operate the CBDs through the RHU system • RHU and/or PHE Resource team (PHE RT) advocates with LGU to provide funds for FP supplies 	A
Does not have supplies to distribute to CBDs (because of lack of LGU funding)	<ul style="list-style-type: none"> • Willing to supervise CBDs and PEs • Willing to service referrals from PEs and CBDs 	<ul style="list-style-type: none"> • Link CBDs with a private sector source of FP supplies, i.e. local pharmacies, social marketing groups, etc. • RHU and/or PHE Resource team (PHE RT) advocates with LGU to provide funds for FP supplies to complement CBD operation • RHU to integrate PEs and CBDs into their system 	B

Model A: In this model, CBDs obtain (purchase) their FP commodities from the RHUs. They have access to products allocated to the RHU by the Department of Health (DOH), Provincial Health Offices (PHO), and/or LGU procurement. The model also requires that the Municipal Health Office (MHO) oversee the CBD supply system and that the RHU staff members supervise the CBDs/PEs and service referrals from these volunteers. For this model, the RHU has to continuously advocate with the LGUs to provide funds for FP supplies to complement any CBD cost recovery system in place and to meet the demand from increasing acceptors resulting from the CBD system.

Model B: This is when there are no FP supplies at the RHU, or the RHU can provide FP supplies only for free distribution. But, the RHU is willing to supervise CBDs and PEs. In this model, a private supplier (pharmacy, pharmaceutical or social marketing company) can be tapped as a direct source of FP commodities for the CBD outlets. The RHUs serve as referral points for the CBDs/PEs. They also advocate with LGUs for funding to purchase FP to complement the CBD cost recovery system and meet the demand from increasing acceptors. RHUs are encouraged to integrate the trained adult PEs and CBDs into their system in order to institutionalize the outreach education and demand creation component of the scheme.

Research questions

1. The objective of this report is to provide an analysis of changes in behavior and knowledge of coastal residents in the Project areas. The general research questions are: Are there positive changes in indicators reflecting Project goals since the Project was initiated?
2. Are there differences in positive change rates in municipalities characterized by different Project activities; e.g., treatment differences?
3. Do individual (e.g., age, education, gender, Project participation, etc.) and/or socio-demographic factors have any influence on changes in Project goal indicators (the dependent variables)?

Methods

The methodological approach used in the presented research is relatively straightforward. Proposed independent and dependent variable indicators were assessed at the beginning of the Project in 2011 (Pollnac & Wagner 2012), and then assessed again approximately one and a half years later (in early to mid-2013). Differences in Project goal indicators were interpreted as resulting from Project activities, assuming that effects of other variables were randomized by the sample selection procedure. Nevertheless, the effects of individual and socio-demographic variables known to influence the diffusion of innovations (Rogers 1995) were examined to determine their separate effects on the observed changes.

Indicators of perception and behavior change

The research team used a number of indicators to assess changes in behavior and knowledge. First, it used four composite variables that were generated from a behavior monitoring survey (BMS) tool developed by PFPI. This tool includes four series of questions that measure perceptions related to *Reproductive Health*, *Poverty-Environment Linkages*, *Environment and Empowerment* and *Food and Income Security*. By assessing people's perceptions related to the four groups of questions, it is possible to gauge to what extent the Projects' behavior change communications interventions are effective and people's perceptions are changing (in the "desired" or "undesired" direction). The four groups of opinions were:

Reproductive Health

1. Everyone should have the right to choose how many children they want and when to have them.
2. Adolescents should have access to information on sexuality.
3. Teens should NOT have access to contraceptives even if they are already having sex.
4. Condom use can protect us from unwanted pregnancy AND sexual diseases.

Poverty and Environment Linkages

1. Barangays can face a crisis when there are too many people and not enough fish to go around.

2. If couples do not practice FP, there may not be enough natural resources to go around in the future.
3. Garbage problems can get worse when there is overcrowding in barangays.
4. Families with a large number of children are better off economically than families with only a few children.

Environment and Empowerment

1. Our community is helpless in protecting the environment.
2. Water is becoming scarcer in this area.
3. Only the government is responsible for conservation.
4. Mangrove forests can provide protection against the effects of strong currents and big waves.
5. If we throw our garbage on the beach, the ocean takes it away and causes no harm.

Food and Income Security

1. There has been a decline in fish availability in this barangay over the past few years.
2. We are not able to afford to send all our children to school.
3. Sometimes there is not enough food to go around and the family goes hungry.
4. Aside from the sea we have other sources to turn to for income.

Preparing the BALANCED questionnaire, the research team modified the original BMS survey to reflect the values and goals of the PHE Project. The original PFPI BMS coding applied values from 1 to 5 for the categories “strongly agree” to “strongly disagree,” respectively. For example, for the statement “*Everyone should have the right to choose how many children they want and when to have them,*” “strongly agree” would be coded as 1 and “strongly disagree” as 5. However, since agreement with this statement is a goal of PHE Projects, the BALANCED team coded “strongly agree” as 5 and “strongly disagree” as 1. Similarly, for the statement “*Teens should NOT have access to contraceptives even if they are already having sex,*” “strongly agree” is coded as 1 and “strongly disagree” as 5. Analyzing the data, the team created a total scale score and a scale score for each of the four categories.

The team also constructed a **CRM scale** based on responses to the following questions:

1. Would you support regulations limiting the number of fishermen allowed to fish in municipal waters?
2. Would you support regulations restricting fishing?
3. Have you ever reported someone using illegal fishing methods or coastal activities?
4. Have you ever participated in Bantay Dagat patrols?
5. Are you an active member of Bantay Dagat?
6. If you have a relative from another municipality who wants to fish here, would you tell him to register?
7. Did you know that Philippine law allows a citizen to file a lawsuit against illegal fishermen?

8. Have you ever asked your local government officials to take actions to improve the coastal and marine environment?
9. Do you cut mangroves? (“no” coded as 1, “yes” coded as 0)
10. Have you participated in a coastal cleanup?
11. Do you pick-up and properly dispose of plastic garbage you see on the beach or in front of your house?

For these questions, “Yes” was coded as 1, “no” as 0, and maybe as 0.5. This resulted in a scale theoretically ranging from 0 to 11.

A scale measuring **Reproductive Health Behavior and Knowledge** was created. It was composed of the following questions:

1. Did you plan pregnancies (that you had with your partner)?
2. Are you currently using any contraceptive?
3. Did you/your partner use any method to prevent pregnancy the first time you had sexual intercourse?
4. The last time you had sex, did you/your partner use anything to prevent pregnancy?
5. Do you know anything about sexually transmitted diseases?

Responses were coded 1 for “yes” and 0 for “no.” The total score was the sum of the scores for each item, resulting in a scale theoretically ranging from 0 to 5.

The final scale was related to **Perceived Changes in Income and Marine Resources**. The study used a visual, self-anchoring, ladder-like scale to measure perceived changes in income and marine resources. The ladder-like scale allows for making finer ordinal judgments, places less demand on informant memory and can be administered more rapidly (Pollnac and Crawford 2000).⁶ Using this technique, the respondent is shown a ladder-like diagram with 15 steps. The respondent is told that the first step represents the worst possible situation. For example, with respect to income, the respondent is told that the first step is: “You have no income whatsoever and don’t have enough money to buy food or shelter.” The highest step is described as: “You are rich.” You have enough money to buy whatever you want or need.” The respondent is then asked their situation 10 years ago and where they are today.

With respect to condition of the marine resources, the respondent is told that the first step is: “There are little or no fish in the sea. One can go out fishing for days and catch nothing.” The highest step is described as: “There are so many fish in the sea that a fisherman can go out fishing for a very short time and fill his boat with the fish he wants.” The respondent is then asked the condition of the resource 10 years ago and where it is today. The perceived change is the difference between today and 10 years ago. These types of measures have been found to be

⁶ The method used to measure the indicators of change in income and status of the marine resources takes advantage of the human ability to make graded ordinal judgments concerning both subjective and objective phenomena. Human behavior is based on graded ordinal judgments, not simply a dichotomous judgment of present or absent. This level of measurement allows one to make more refined judgments concerning perceived changes, as well as permitting the use of more powerful statistical techniques to determine differences between communities.

valuable in determining perceived changes. In this report we refer to these scales as “self-anchoring ladder scales.”

Linking the Indicator Scales to Project IRs

The BALANCED-Philippines Project expected to influence measurable change across all sites only for the first, second, and third intermediate results. As explained in the introduction, the reason is that CRM and livelihoods interventions (IR 4 and 5) were not implemented in all sampled sites. However, since each site has some sort of MPA and/or fisheries management scheme (supported or not supported by the Project) and because the PEs delivered IEC messages related to PHE in all sites, we choose to compare changes in perceptions and knowledge across all indicators for all sites. However, while the changes related to reproductive health and PHE linkages can be attributed to Project interventions, the changes in CRM and livelihoods (IRs 4 and 5) serve more to assess trends rather than impact of Project interventions. In future research it may be possible to analyze the data per site to assess CRM impacts by comparing the sites that had MPA and livelihoods support and those that received only FP/RH support.

The seven indicator scales (dependent variables) are connected to the following IRs:

IR 1. Improved access to FP/RH services IR 2. Increased community awareness and support of FP and PHE	<ul style="list-style-type: none"> • RH BMS scale • Poverty-Environment Linkages BMS scale • RH Behavior and Knowledge
IR 4. Improved governance capacities of provincial and municipal LGUs (to manage marine resources) IR 5. Increased incentives for coastal and marine conservation among coastal fisher households	<ul style="list-style-type: none"> • Environment and Empowerment BMS scale • Food and Income Security BMS scale • CRM Behavior and Knowledge • Perceived Changes in Income and Marine Resources

Independent Variables

The team analyzed the survey data and assessed to what extent intervention types (i.e. treatment differences) influenced the changes in the seven scales of behavior and knowledge—again noting that the Project could be attributed for changes in only three of the scales. The intervention types assessed were:

1. **New** vs. **maintenance** sites (time community was involved in the PHE efforts).
2. CBDs receiving supplies from RHU (Model A) or private sources (Model B).
3. Length of time since a Memorandum of Understanding (MOU) was signed.
4. Whether the respondent is a Project participant or not.

Contextual and individual participant attributes such as gender, age, education, family size, types of Project participation and knowledge were also assessed to understand to what extent they influenced the responses and changes over time on the six scales. Measurements of these variables are based on questions related to the information of interest.

Sample

Data for 2011 was derived from 20 randomly selected **maintenance** communities and 20 randomly selected **new** communities (see Table 2 and Figure 1). The 2011 data was collected between July and October 2011. In 2013, the team surveyed the same villages, except the municipality of Tingloy, which had dropped out of the Project. Data for 2013 was collected between March and June of 2013.

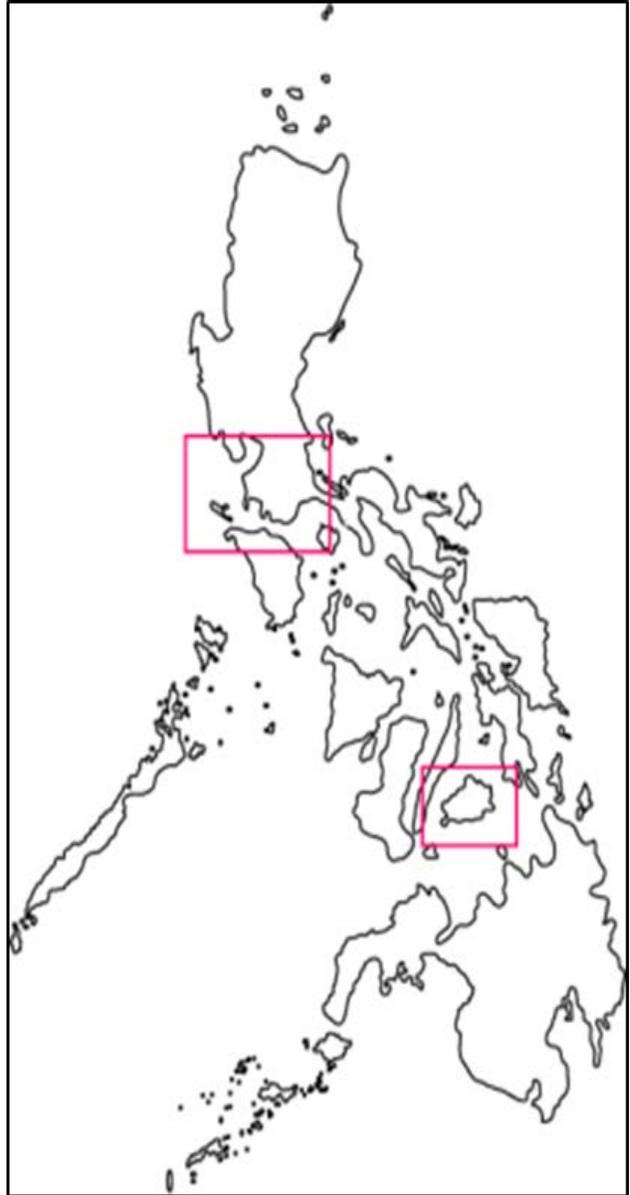
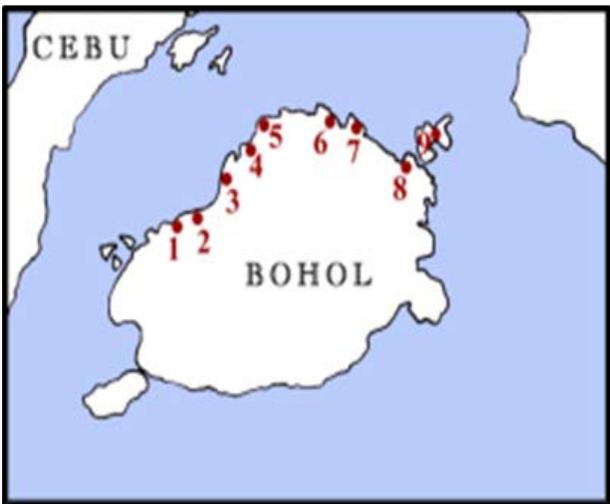
The distribution of samples by municipality can be found in Table 2. Two new non-randomly selected villages were added to the sample: Cuaming in the municipality of Inabanga and Asinan from the municipality of Buenavista. These villages, which were both in **maintenance** sites, were considered by key Project personnel as demonstration sites. Both sites scored high on the MPA management effectiveness assessment and did not receive MPA and fisheries strengthening support. However, as shown in Table 2, they did receive livelihood support. They are kept separate in the statistical analyses.

Table 2. Distribution of Sample by Municipality

Municipality	2011	2013	Total	Type of Site	CBD Model	IR 4 or 5 support
BOHOL						
1 Tubigon	82	81	163	M	A	
2 Clarin	40	40	80	M	A	IR 4: Nahawan, Tangaran, Bonbon, Lajog MPAs IR 5: Majigpit MPA
3 Inabanga	81	120	201	M	A	IR 4: Lawis and Ondol MPAs IR 5: Cuaming and Hambangan
4 Buenavista	81	120	201	M	A	IR5: Asinan MPA
5 Getafe	80	80	160	M	A	
6 Talibon	80	80	160	M	A	
7 Bien Unido	81	80	161	M	A	
8 Ubay	80	80	160	M	A	
9 CP Garcia	80	80	160	M	B	IR 4: Lipata, Bonbonon, Saguise, Tugas MPAs IR5 : Aguining and Baud MPAs
BATANGAS						
10 San Juan	120	122	242	N	B	IR 4 support through the Provincial MPA and BD Networks
11 Lobo	120	120	240	N	B	Same as above
12 Mabini	40	40	80	N	B	Same as above
13 Batangas City	40	40	80	M	B	Same as above
14 Tingloy	80		80	N	n/a	Same as above
15 Nasugbo	120	120	240	N	B	Same as above

16 Calatagan	120	120	240	N	B	Same as above
OCCIDENTAL MINDORO						
17 Lubang	80	80	160	N	A	IR 4: in 13 ⁷ MPAs IR 5: 16 barangays
18 Looc	40	40	80	N	B	IR 4: in 13 MPAs IR 5: 9 barangays
19 Paluan	80	80	160	N	B	IR 4: in 13 MPAs IR 5: 16 barangays
ORIENTAL MINDORO						
20 San Teodoro	40	40	80	M	B	IR 4 through the Provincial BD and MPA Networks
21 Baco	40	40	80	M	A	IR 4 through the Provincial BD and MPA Networks and IR 5: Barangay Pulantubig and San Andres
Total	1,605	1,603	3,208			IR 4 through the Provincial BD and MPA Networks
M = Maintenance Sites, N = New Sites, Models: A = RHU supported, B = Private Sector, IR 4 = MPA or Bantay Dagat Support, IR 5 = livelihoods support						

⁷ 13 MPAs of Lubang Island Group (LIG): Lubang-Looc No Take Zone, Lubang Marine Park, Cabra Island Fishery Reserve, Bahurang Vigo, Bahurang Malapad ng Lubang, Bahurang Malapad ng Looc, Bahurang Eight Fishery Reserve, Bahurang Seven, Agkawayan-Ambil Pass, Bahurang Aurora, Bahurang Bulacan, Bahurang Tapat, and Bahurang Butong/ Pandan



Red=Maintenance Sites; Green=New Sites; Numbers identify locations of municipalities in Table 1.

Figure 1. Location of sample municipalities

Analysis

Analysis of the BMS scales

Analysis of variance (ANOVA) was conducted across the site types for each of the four BMS scales. The results of these analyses can be found in Figures 2 through 6.

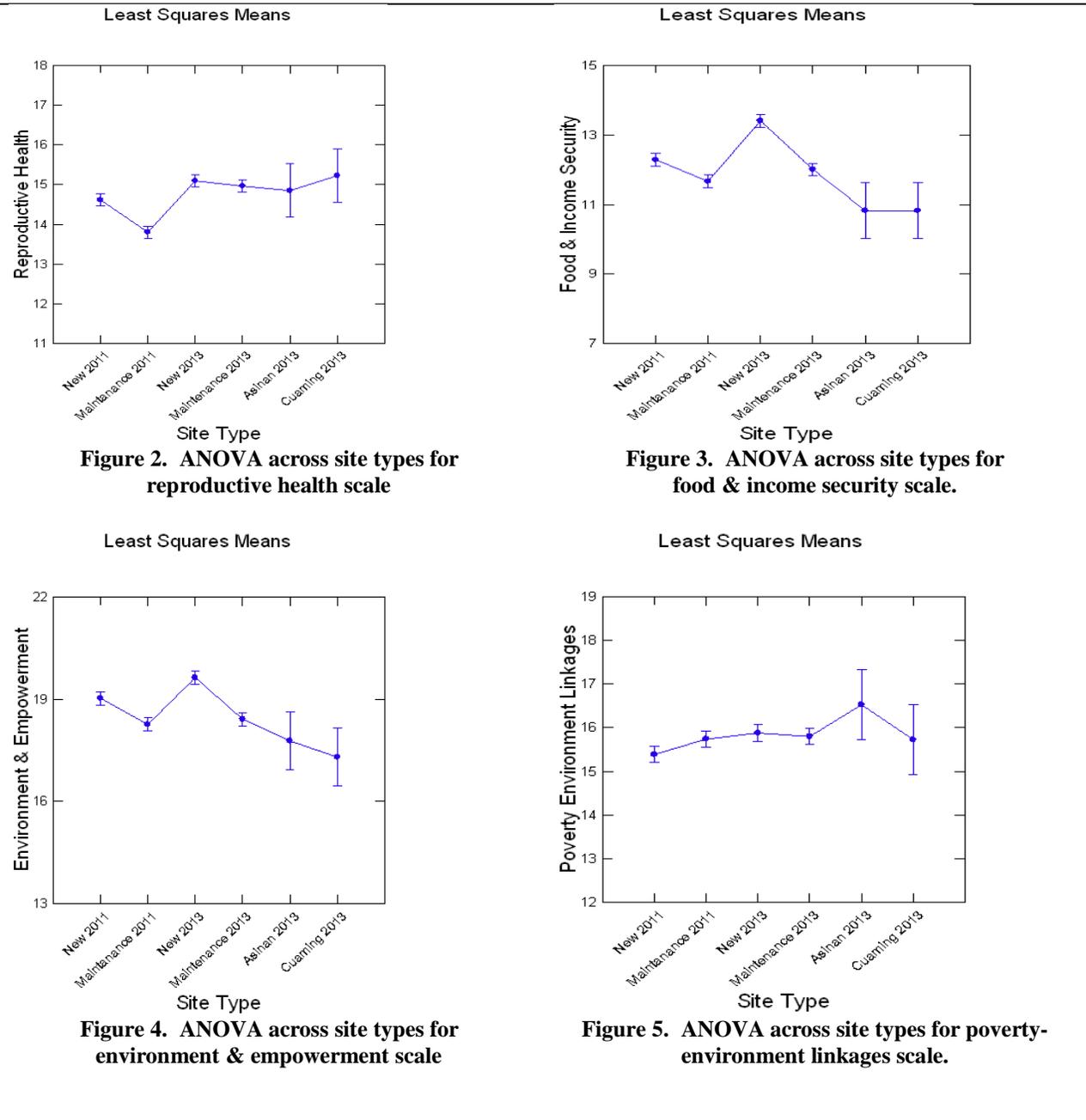


Figure 2 shows that the values for the reproductive health scale in 2013 are higher than those for 2011—a positive finding. Overall differences are statistically significant for this scale ($F=34.378$, $df = 5\ 3197$, $p<0.001$). Interestingly, in Figure 3, scale scores for the food and income security scale increased between 2011 and 2013 for both the **maintenance** and **new** sites. The overall differences are statistically significant ($F=43.297$, $df = 5\ 3198$, $p<0.001$). Figure 4 indicates increases between 2011 and 2013 for the **new** sites on the environment and empowerment scale, while there is only a very small increase in the **maintenance** sites. The overall differences are statistically significant ($F=27.188$, $df = 5\ 3199$, $p<0.001$). Figure 5 indicates increases between 2011 and 2013 on the poverty and environment linkages scale for both the **maintenance** and **new** sites. The demonstration sites scored as high or higher than the random **maintenance** site sample on the reproductive health and poverty-environment linkages scales; these were directly linked to Project interventions, while they scored lower on the two more contextual scales.

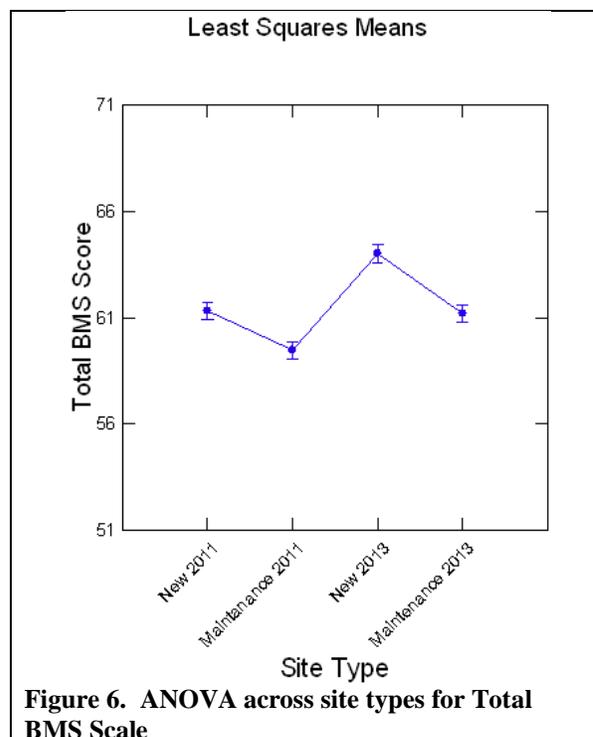


Figure 6. ANOVA across site types for Total BMS Scale

The plot for the Total BMS Scale in Figure 6 indicates increases for the **new** and **maintenance** sites between 2011 and 2013. The differences are statistically significant ($F=77.568$, $df=3\ 3109$, $p<0.001$). While all sites on all of the BMS scales manifest increases between 2011 and 2013, all are statistically significantly different in the **new** sites, while only three are statistically significant in the **maintenance** sites (Tables 3 and 4).

Table 3. Changes in BMS Scale Values in Maintenance Sites between 2011 and 2013

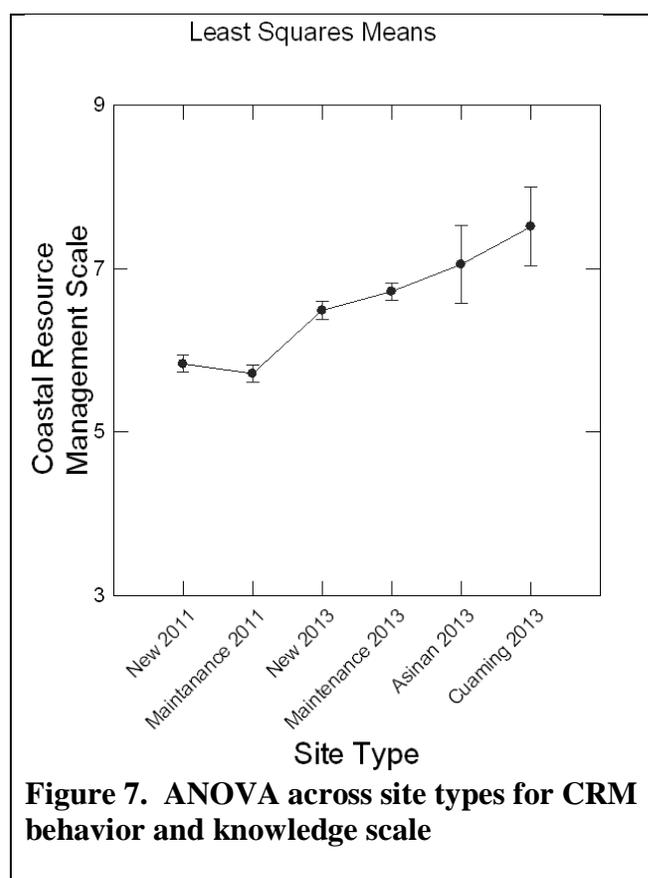
Variable	Date	N	Mean	S.D.	t-value	df	p-value
Reproductive Health	2011	803	13.803	2.574	9.894	1,603	<0.001
	2013	802	14.964	2.102			
Food & Income Security	2011	805	11.666	2.803	2.555	1,605	<0.050
	2013	802	12.006	2.531			
Environment & Empowerment	2011	805	18.257	2.888	1.124	1,605	>0.050
	2013	802	18.413	2.656			
Poverty Environment Linkages	2011	802	15.739	3.034	0.417	1,602	>0.050
	2013	802	15.798	2.579			
Total BMS Score	2011	800	59.475	6.594	5.556	1,599	<0.001
	2013	801	61.172	5.589			

Table 4. Changes in BMS Scale Values in New Sites between 2011 and 2013

Variable	Date	N	Mean	S.D.	t-value	df	p-value
Reproductive Health	2011	797	14.616	2.182	4.765	1,516	<0.001
	2013	721	15.094	1.662			
Food & Income Security	2011	796	12.286	2.568	8.776	1,515	<0.001
	2013	721	13.406	2.383			
Environment & Empowerment	2011	798	19.026	2.818	4.330	1,516	<0.001
	2013	720	19.631	2.596			
Poverty Environment Linkages	2011	797	15.386	2.606	4.084	1,516	<0.001
	2013	721	15.878	2.008			
Total BMS Score	2011	791	61.314	5.879	9.522	1,510.000	<0.001
	2013	721	64.011	5.056			

CRM behavior and knowledge scale analysis

Analysis of variance was conducted across the site types for the CRM behavior and knowledge scale, and the results are plotted in Figure 7. For the **maintenance** and **new** sites, the values on this scale clearly increased between the two time periods. Additionally, the values for the two demonstration sites are higher than the sites in the random sample. This corresponds with an assessment of the MPAs in the demonstration sites, which found that the MPAs in Asinan had reached Level 4 (which means that the MPA is institutionalized). In Cuaming the MPAs had reached a level 3 (which means that the MPA is sustained).⁸ Analysis of variance across the site types is statistically significant ($F=56.354$, $df = 5$ 3131, $p<0.001$). Changes across time for both the **maintenance** and **new** sites are statistically significant (Table 5).



⁸ The BALANCED-Philippines Project implemented the MPA Management Effectiveness Tool (MEAT) in all sites to determine which categorized the MPAs from established (level 1) to institutionalized (level 4).

Table 5 Changes in Coastal Resource Management Scale Values in New and Maintenance Sites between 2011 and 2013

Variable	Date	N	Mean	S.D.	t-value	df	p-value
Maintenance sites							
Coastal Resource Management Scale	2011	787	5.717	1.855	12.422	1,567	<0.001
	2013	782	6.720	1.293			
New sites							
Coastal Resource Management Scale	2011	790	5.835	1.628	8.767	1,489	<0.001
	2013	701	6.489	1.186			

Reproductive health behavior and knowledge scale analysis

Analysis of variance was conducted across the site types for the reproductive health behavior and knowledge scale, and the results are plotted in Figure 8. Once again, the overall differences are statistically significant (F=35.990, df = 5 2897, p<0.001) in the desired direction. The demonstration sites average scores are among the highest, and the increases in scores on the reproductive health scale through time for both the **new** and **maintenance** sites are statistically significant (Table 6).

A variable of special significance included in the reproductive health scale is use of contraceptives. An examination of this variable alone indicates that in the **maintenance** sites 25.4 percent of respondents reported using contraceptives in 2011 in contrast to 53.2 percent in 2013. This increase in usage is statistically significant ($\chi^2 = 125.8, \phi=0.28, p<0.001$). An even greater increase was recorded in the new sites where reported usage increased from 19.8 percent in 2011 to 59.2 percent in 2013 ($\chi^2 = 288.2, \phi = 0.40, p<0.001$) It should be noted that these rates of increasing contraceptive use (in both sites) exceed the average annual increase in CPR for all developing countries (0.82) and for the top 19 most populous countries in the world (0.91) according to Ross and Stover (2010) "USAID Health Policy Initiative Brief: Developing a Family Planning Goal for 2015 that Supports MDG-5b"

http://www.rhsupplies.org/fileadmin/user_upload/Handtohand/BRIEF_published.pdf

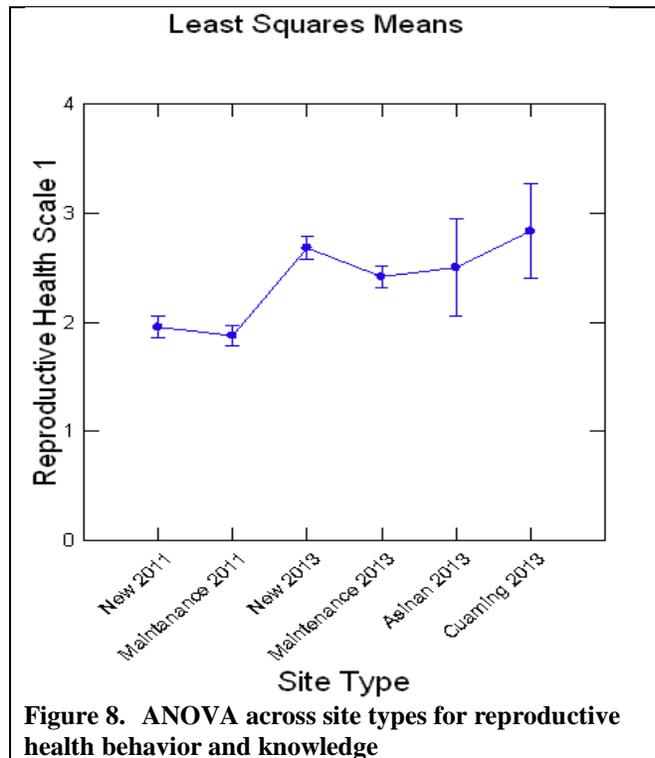


Figure 8. ANOVA across site types for reproductive health behavior and knowledge

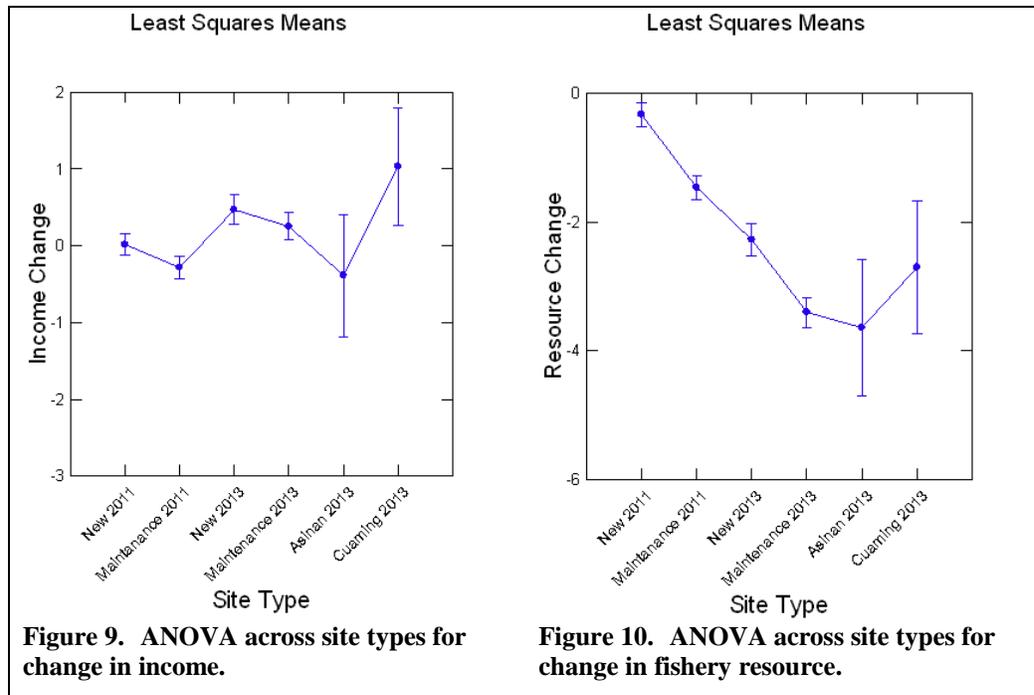
Table 6. Changes in Reproductive Health Scale Values in New and Maintenance Sites between 2011 and 2013

Variable	Date	N	Mean	S.D.	t-value	df	p-value
Maintenance sites							
Reproductive health scale	2011	732	1.876	1.158	7.625	1,461	<0.001
	2013	731	2.417	1.530			
New sites							
Reproductive health scale	2011	712	1.955	1.117	10.389	1,368	<0.001
	2013	658	2.678	1.448			

Self-anchoring ladder scales for changes in income and resources analysis

Analysis of variance was conducted across the site types (**new** and **maintenance** sites) for changes in income and resources as measured by the self-anchoring ladder scales. Results of these analyses

are plotted in Figures 9 and 10. In 2013 income changes were perceived as positive in the **new** and **maintenance** sites (Figure 9). The demonstration site Asinan perceived a slight negative change, while the other demonstration site perceived a



positive change. Overall differences between changes perceived by the different site types are statistically significant ($F=10.539$, $df = 5$ 2645, $p<0.001$). Increases in scores through time on the self-anchoring ladder scale for income for both the new and maintenance sites are statistically significant (Table 7).

Table 7. Changes in Self-anchoring Ladder Scale Values for Income and Fishery Resources in New and Maintenance Sites between 2011 and 2013

Variable	Date	N	Mean	S.D.	t-value	df	p-value
Maintenance sites							
Income change scale	2011	805	-0.283	1.875	-4.614	1,333	<0.001
	2013	530	0.251	2.335			
New sites							
Income change scale	2011	800	0.016	1.817	-3.851	1,260	<0.001
	2013	462	0.472	2.340			
Maintenance sites							
Resource change scale	2011	804	-1.465	2.829	12.542	1,329	<0.001
	2013	527	-3.400	2.634			
New sites							
Resource change scale	2011	797	-0.335	2.459	12.355	1,256	<0.001
	2013	461	-2.275	3.035			

In 2013 changes in fishery resources were perceived as negative in the **new** and **maintenance** sites as well as the demonstration sites (Figure 10). In 2013 the changes were perceived as more negative than in 2011, indicating a deteriorating situation. Overall the perceived differences are statistically significant ($F=90.134$, $df= 5\ 2635$, $p<0.001$). Decreases in scores through time on the self-anchoring ladder scale for fishery resources for both the **new** and **maintenance** sites are statistically significant (Table 7).

Treatment Differences

The following analyses examine differences in Project goal indicators associated with variation in Project activity. First, we examine the influence of differences in the means by which the CBD receives contraceptive supplies, either from the RHU (Model A) or a private supplier (Model B). Results are found in Table 8. In all cases where we find a statistically significant result, except for income change, people living in communities with private-supplied CBDs score higher.

The second Project process examined is length of time since an MOU was signed to establish agreements between the LGU and the Project and outline reciprocal obligations. MOUs are necessary to insure smooth Project operation. Results of an analysis of variance examining the effects of differential lengths of existence of MOU can be found in figures 11 through 16.

Table 8. Influence of CBD Supplier on Project Goal Indicators

Variable	CBD supply	N	Mean	SD	t-value	df	p
Reproductive Health	RHU	721	14.975	2.101	0.981	1,521	0.327
	Private	802	15.071	1.714			
Food & Income Security	RHU	721	12.101	2.608	8.397	1,521	<0.001
	Private	802	13.180	2.403			
Environment & Empowerment	RHU	721	18.480	2.728	7.099	1,520	<0.001
	Private	801	19.447	2.585			
Poverty Environment Linkages	RHU	721	15.803	2.611	0.522	1,521	0.602
	Private	802	15.865	2.037			
BMS Total Score	RHU	721	61.359	5.714	7.910	1,520	<0.001
	Private	801	63.559	5.137			
Coastal Resource Management Scale	RHU	705	6.616	1.220	0.147	1,481	0.883
	Private	778	6.606	1.275			
Reproductive Health Scale 1	RHU	665	2.417	1.544	2.971	1,387	0.003
	Private	724	2.655	1.443			
Income Change	RHU	721	-0.465	3.167	5.116	1,521	<0.001
	Private	802	-1.352	3.557			
Resource Change	RHU	717	-3.335	2.616	0.037	1,517	0.970
	Private	802	-3.329	3.112			

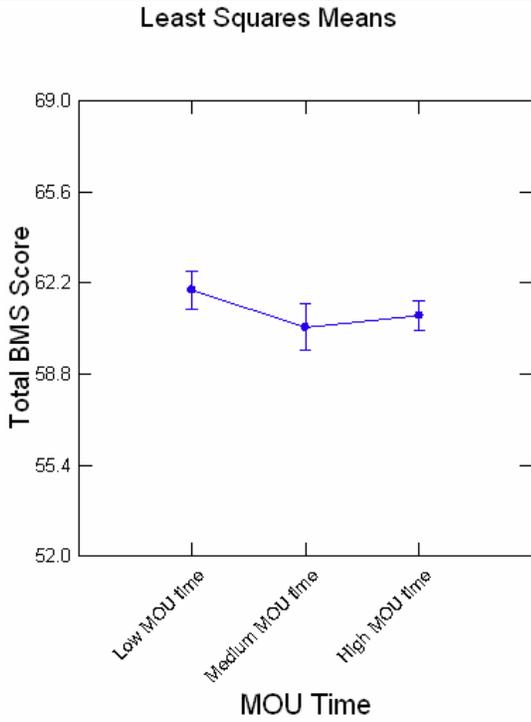


Figure 11. Influence of MOU time on Total BMS Score in Maintenance Sites.

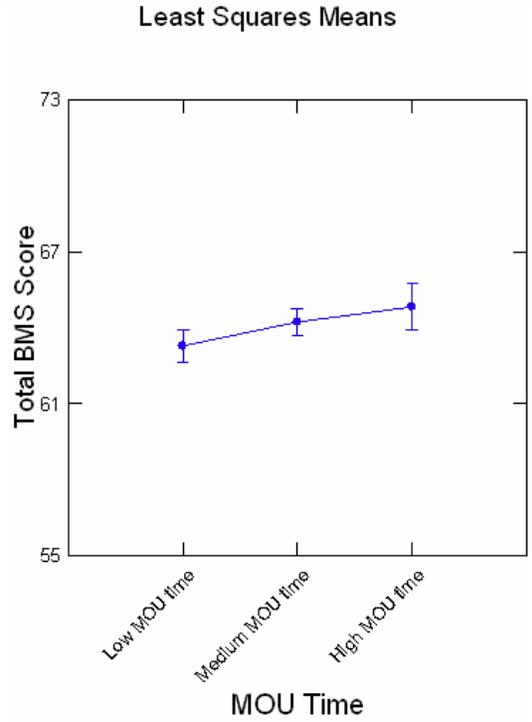


Figure 12. Influence of MOU time on Total BMS Score in New Sites.

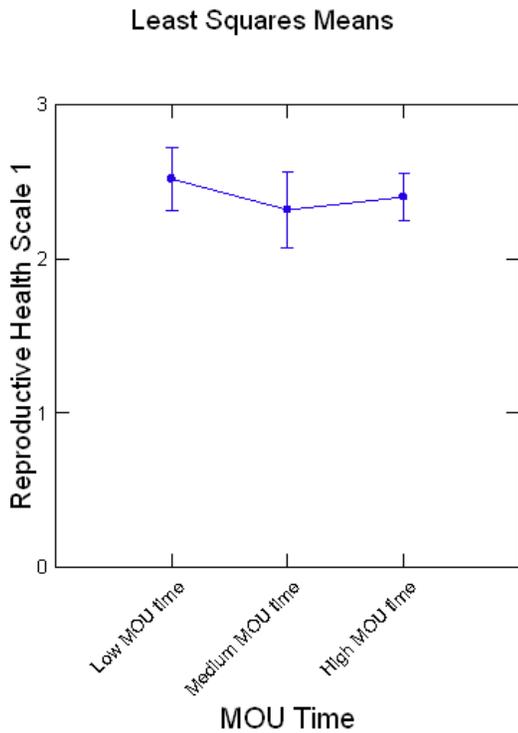


Figure 13. Influence of MOU time on Reproductive Health Score in Maintenance Sites.

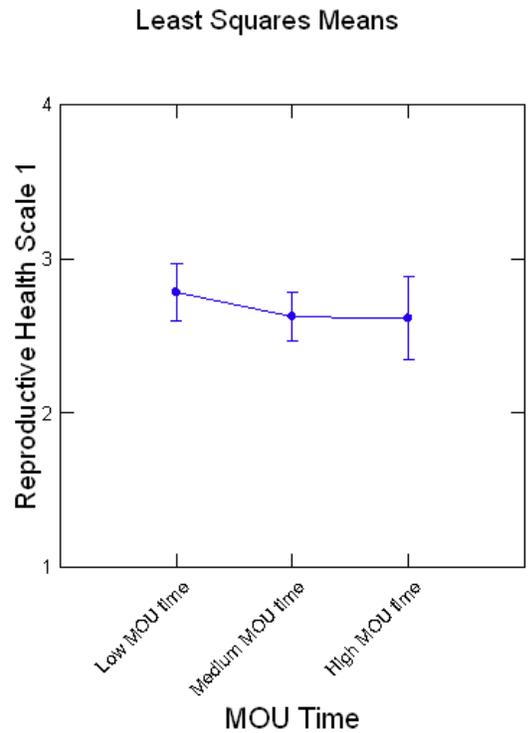
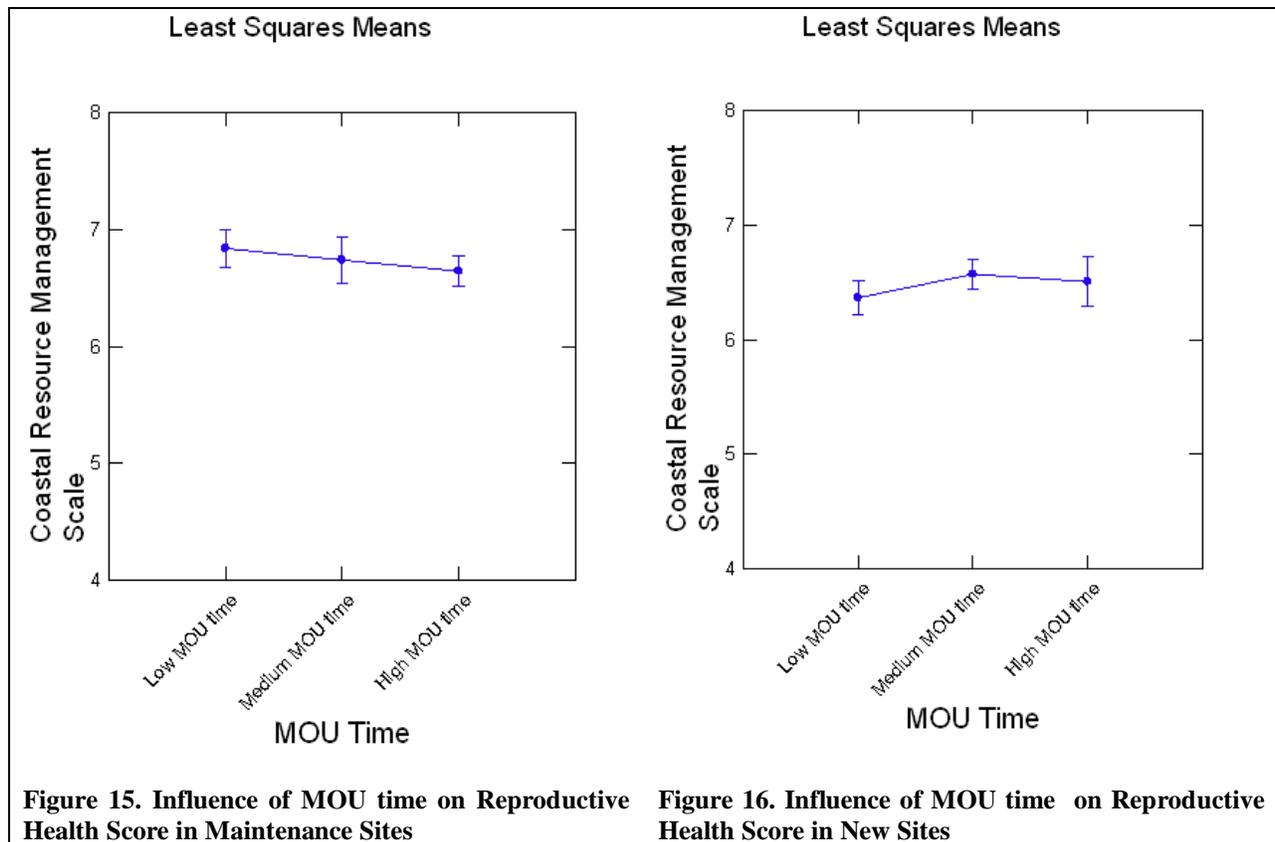


Figure 14. Influence of MOU time on Reproductive Health Score in New Sites.



In Figures 11 through 16, low MOU time equals less than 10 months, medium equals 10 to 20 months and high equals greater than 20 months. Analysis of variance of effects of MOU time on the Total BMS Score (figures 11 and 12) is statistically significant for the **maintenance** sites ($F=3.494$, $df=2$ 798, $p<0.05$) and the **new** sites ($F=4.385$, $df=2$ 718, $p<0.05$). In contrast, effects of MOU time on the RH and behavior scale are not statistically significant for either the **maintenance** or **new** sites ($F=0.785$, $df=2$ 728, $p>0.05$; $F=0.929$, $df=2$ 655, $p>0.05$ respectively). Finally, MOU time had no statistically significant effect on the CRM scores for either the **maintenance** or **new** sites ($F=1.660$, $df=2$ 779, $p>0.05$; $F=2.141$, $df=2$ 698, $p>0.05$).

Some treatments were site specific. For example, on Lubang Island the local guards of the coastal resources (Bantay Dagat) are also providers of FP/RH information, providing an important link between fisheries management and family planning. Table 9 examines the influence of this novel approach on the Project goal indicators. The only statistically significant difference is with regard to the Food and Income Security Scale.

Table 9. Project Goal Indicator Scale Score Differences between Lubang Island Sample and the Rest of the New Site Sample.

Variable	Lubang Island	N	Mean	SD	t-value	df	p
Reproductive Health	Not Lubang	602	15.053	1.680	-1.538	720	0.125
	Lubang	120	15.308	1.555			
Food & Income Security	Not Lubang	602	13.292	2.336	-2.986	720	0.003
	Lubang	120	14.000	2.540			
Environment & Empowerment	Not Lubang	601	19.609	2.556	-0.511	719	0.609
	Lubang	120	19.742	2.788			
Poverty Environment Linkages	Not Lubang	602	15.899	1.948	0.616	720	0.538
	Lubang	120	15.775	2.284			
Total BMS Score	Not Lubang	601	63.849	5.018	-1.935	719	0.053
	Lubang	120	64.825	5.188			
CRM Scale	Not Lubang	583	6.485	1.203	-0.157	699	0.875
	Lubang	118	6.504	1.106			
Reproductive Health Scale 1	Not Lubang	547	2.691	1.442	0.520	656	0.603
	Lubang	111	2.613	1.484			
Income Change	Not Lubang	602	-1.336	3.504	0.041	720	0.967
	Lubang	120	-1.350	3.511			
Resource Change	Not Lubang	602	-3.140	3.026	0.573	719	0.567
	Lubang	119	-3.319	3.603			

Individual effects

Lastly, we examine the influence of individual differences on Project indicator scale scores. We examine differences in Project impacts as related to variables such as age, education, family size, gender and Project knowledge and participation. The variables and the results of the analysis are in Table 10: statistically significant relationships ($p < 0.05$) are shaded; all level variables except for household size manifest at least one statistically significant relationship with the Project goal indicators examined; most are statistically significantly related to at least 3 or 4 indicators.

Table 10. Correlations between Individual Level Variables and Project Goal Indicators

	Income Change	Resource Change	CRM Scale	RH Scale	BMS Score
Gender	0.174	0.054	-0.288	-0.172	-0.010
Age	-0.073	-0.040	0.035	-0.316	-0.087
Years in Village	-0.098	-0.061	0.075	-0.173	-0.026
Education	0.152	0.115	0.047	0.151	0.284
Household Size	-0.001	-0.037	0.051	0.002	-0.041
Know of Project	-0.183	-0.059	0.264	0.220	0.018
See 3T brochure	-0.052	0.014	0.145	0.085	0.117
See other PHE* Information	-0.039	0.026	0.099	0.053	0.100
Participate in PHE Training	-0.036	0.021	0.189	0.058	0.049
Attend PHE Meetings	-0.149	-0.055	0.126	0.126	0.056
Able to Express Needs to PHE	-0.099	-0.023	0.157	0.121	0.077
Influence PHE Decisions	-0.109	-0.026	0.185	0.121	0.081
Provide and Derive Information from PHE	-0.085	-0.009	0.175	0.113	0.085

Correlations in shaded cells are statistically significant ($p < 0.05$); * PHE = BALANCED Project

Discussion

It is clear that positive changes in knowledge and behaviors have occurred over the approximately 18 months from the Project launch until the monitoring exercise was conducted. Increases have been found in all the indicators that measured the impacts of IR 1 and 2 activities and in all contextual indicators, except for condition of the marine resources. The decrease in resource condition might be a result of open access fisheries and population growth—the current CRM approaches may not be working or need to be intensified to affect fish stocks.

When comparing the graphs in Figures 2 through 9 it is possible to generalize that the indicators increased in both the **new** and the **maintenance** sites with a slightly steeper rise for the **new** sites. The consistency across all but one of the indicators is encouraging given the short time period between the baseline and the monitoring process. True, the changes are not large—with such a large sample size very small changes can be statistically significant and give a false sense of practical significance (Ziliak & McCloskey 2008)—but they are consistent and in the same direction providing more confidence in the individual results. Further, without controls, it is impossible to attribute with absolute certainty the positive changes to the BALANCED-Philippines intervention—there are other RH and environmental efforts throughout the Philippines. But, based on our many interviews and observations, we are confident that the BALANCED-Philippines Project had a positive impact. Future analyses, using a battery of multivariate techniques, might be able to tease out Project from non-project impacts.

It is possible that the differences between **maintenance** and **new** sites are partially attributed to the fact that the two areas surveyed (Danajon Bank, where most of the **maintenance** sites are, and the VIP, where most of the **new** sites are) have somewhat different contexts. Some areas of the VIP within driving distance from Manila are more suburban. This may explain the difference in educational attainment of women of reproductive age (WRA) between the two regions. According to the most recent Philippine Demographic and Health Survey (National Statistics Office (Philippines) and ICF Macro. 2009) 36.9% of WRA in CALABARZON (the region that includes Batangas) have completed secondary education and another 34.2% have some college education. However, in REGION VII (which includes Bohol), only 25.7% of WRA have completed secondary schooling and 26.6% have some college education. These differences correlate with higher levels of total fertility in REGION VII (3.2) compared to CALABARZON (3.0) and shorter average birth interval (32.3 months) in the former compared to the latter (34.1) region. Another explanation is that women in CALABARZON (25.1%) have unmet demand for birth spacing compared to REGION VII (22.3%). Where demand is higher, it seems logical that uptake of FP will be higher—especially if access to contraceptives is improved and women have high enough education to take advantage of the services/methods.

Comparing the demonstration sites' scores with the random **maintenance** site sample, demonstration sites scored higher on the scales that had the strongest correlation with the Project interventions. It is interesting that they scored lower on the environment-empowerment scale and the food and income security scales. Since the sites are regarded as excellent MPA sites based on their Management Effectiveness Assessment Tool (MEAT) assessment, it is hard to explain why they scored lower on the environment-empowerment scale. One possible explanation is that they might have been more critical and taken more care in their responses. Another suggested reason is that one of the sites, Asinan, which frequently, but not always, scored lower than Cuaming, had an internal split between the old MPA management group (now defunct) and the new group.

The MPA won a prize, and the older group wanted a share of the prize, resulting in internal conflict that may have influenced responses to the Project goal indicators scores.

Turning to differences in Project approaches, our first analysis indicated that in all cases where we find statistically significant differences in Project indicators related to supply source for CBD's, except for income change, people living in communities with privately supplied CBDs score higher. The relationship between these variables is difficult to interpret—it may be due to other unknown factors associated with public versus private enterprise. Further, analyses is needed for: 1) impacts of the length of time an MOU was in place and 2) combining the roles of guardians of the sea (Bantay Dagat) and providers of RH/FP information. There were little or no statistically significant relationships with regard to the two differences in Project treatment. In the case of the second Project treatment, it seems that the efforts were too recent to have had an effect at the time of the monitoring exercise. Also, one of the key players in the BALANCED-Philippines Project reported that in the past they could operate effectively in a municipality without an MOU, suggesting that it might not be an important variable.

The bivariate analyses of relationships between individual level variables and Project goal indicators also provided some interesting and useful findings. There are too many statistically significant relationships to discuss in detail in the conclusions of this preliminary report, but it is clear, once again (cf. Pollnac & Dacanay 2011) that Project knowledge and participation has a positive effect on achieving Project objectives as measured by our indicators. Hence, increasing efforts at stimulating participation can increase Project impacts in the desired direction. Another potentially useful finding in the bivariate correlation analysis is the relatively strong, negative relationship between age and the Reproductive Health Behavior and Knowledge Scale. Much of BALANCED's efforts are directed at younger people—they are the ones who are reproducing. But, in Philippine society, especially in rural areas, the views of the elders are respected; hence, their attitudes and knowledge concerning RH can be important in stimulating or resisting change.⁹ Further multivariate analyses of the relationships found in Table 10 will clarify the complexity of the relationships between these variables and the Project indicators. This will be accomplished in future reports.

⁹ This important observation was made by Dr. R Hernandez, PATH Foundation, Philippines in a discussion we had concerning these preliminary results.

Recommendations

- Since the positive changes in perceptions and knowledge and FP/RH practice were greater for the **new** sites than the **maintenance** sites, the greatest changes may occur in the beginning of an initiative. This indicates that it is worthwhile to expand the PHE approach to work in **new** sites. However, the findings indicate that the Project is having a consistent effect of slowly increasing the scores on the Project goal indicators examined. Hence, increased efforts in both **maintenance** and **new** sites will probably increase the speed and degree of these positive impacts.
- More attention needs to be given to informing and convincing elders of the positive benefits of FP in dealing with current problems concerning population and the environment. The respect with which they are held in traditional Philippine society could be used to more effectively deliver the PHE message. If they do not understand or disagree with the approach, they could have a negative impact on its implementation.
- The strong and consistently positive relationship between scores on the six indicator scales and Project knowledge and participation indicates a need to increase both communication with and participation of the target populations. This can be accomplished by using well-known procedures for appropriate communication of Project activities and impacts to stimulate diffusion to a larger population (cf. Rogers 1996).
- Further analysis should be undertaken to better understand how the contextual and individual variables influenced the changes in behaviors and knowledge. It would also be interesting to unpack the models used in the **new** and **maintenance** sites to assess if certain components were more important than other.

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