**Sustainable Aquaculture Initiative**
**Progress Report to AwF for activities in Haiti 4th Quarter 2011**

The vision of a school-based Aquaculture Learning Center is becoming a reality thanks to hundreds of Haitian labor hours, the dedicated faculty at the Henri Christophe High School, and the financial help of AwF, Novus International and others. Our mission during our most recent trip to Haiti was to stock the basin with its first load of fish and to hire and train a select group of "employees" to maintain the system and care for the fish. Paramount during this phase of the project was the establishment of standard operating procedures and a method for internet-based record keeping and reporting which will allow us to monitor and guide our new aquaculturists during this critical startup phase.

**Aquaculture Learning Center (ALC) - Marigot, Haiti**

*The Vision*

*The Reality*

Within minutes of landing at the Port Au Prince airport we were met by Dr. Val Abe (Caribbean Harvest Inc.) and 2,000 tilapia fingerlings which were safely transported to the Henri Christophe School by the end of the first evening. The following days were spent monitoring the bio-filter and airlift pumping systems, securing all wiring, and conducting water quality training and record keeping sessions with our new "employees." Neighborhood kids were paid to collect select pieces of porous coral beach rubble that were added to the biofilter. Jeto, the hired security guard, cut stalks of bamboo that were then strung together and draped in the pond to serve as a substrate for algal growth (periphyton), which will supplement the diet of the tilapia. Floating rafts were installed that contain aquaponic "growing cells" of cabbage; the protruding plant roots will serve to help filter the water, provide additional forage for the fish, and should yield 4-5 dozen heads of cabbage every eight weeks. The floating plant rafts also provide the fish with shade from the Haitian sun and protection from birds.

One of the biggest challenges was teaching the hired crew how to manage the system on their own so that it can continue to operate smoothly without our involvement. The team that has been put together consists of Jeto, the security guard, Ilnord, a schoolteacher who will monitor water quality and take fish weights, and Zo, a fisherman who will assist with harvesting the fish and maintaining the system. Daily aquaculture training sessions were conducted with the Haitian staff to teach them how to monitor basic water chemistry, calculate feed rations, measure fish growth, and accurately record data. To facilitate communication and allow us to monitor progress from the U.S., Ilnord was provided a laptop computer pre-loaded with Excel data sheets which are sent to us via e-mail every two weeks.

*The ALC team, from left to right: Gedeon, Jeto, Ernest, Serge, Ilnord, Zo*

Students who were not in class congregated around us during these training sessions taking notes and asking questions. It was encouraging to see the enthusiasm and incredible desire to learn expressed by everyone. The desire to learn seems to be insatiable amongst Haitians; this realization reinforced our feeling that we are on the right track with the goals of the ALC. Regardless of whether or not a student decides to pursue aquaculture when they graduate, they will have gained valuable insight to the basics of wastewater treatment, agro economics, animal husbandry, and water chemistry. After several days of training, students and teachers were able to demonstrate their understanding by doing the water quality tests without help from us. They have begun recording data and observations on the log sheets and the transmission of this data to us has been successful.

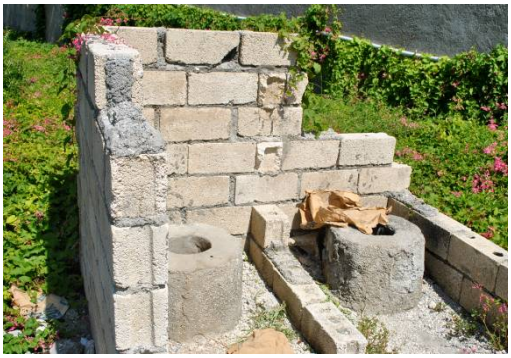
Another objective during this trip involved negotiating how the ALC would operate within the existing fabric of the school and how expenses and revenue would be handled. We met with the school's principal, disciplinary director, and dean of students to discuss these issues. The consensus is as follows: The MBL's Sustainable Aquaculture Initiative will fund the payroll for the three new staff members, purchase fish feed, and cover the

basic maintenance costs to operate the system for one year. A precalculated portion of the revenue generated through the sale of fish will be used for 2013 operating expenses and net profits will be used to make capital improvements to the school, help hire more teachers, and assist local families in dire need. Decisions regarding the specific allocation of profits will be done by consensus of a committee comprised of faculty and students. The targeted production potential of the ALC's fish basin (>2,000 lbs/yr) will provide plenty of revenue to be 100% sustainable if funds are managed properly. Our Haitian partners support and understand the value of what the ALC can offer and are committed to making it work. We share the common vision of creating opportunities for improving people's lives though both education and food production.

*Negotiating responsibilities with school principal*

Special thanks to Serge Fontaine and Ernest Colon for translation and for helping us negotiate the bumpy roads and the sometimes confusing, but always intriguing, culture. The reception that the ALC has received in the town of Marigot has been heart warming. The local radio station featured a special broadcast describing the project and adults and non-students have already asked that the ALC be made available after normal school hours so they can learn how to raise fish! All points of the compass indicate we are on the right track – people want to learn how to raise fish and the ALC seems to be Welcomed and needed.

Before leaving to return home we had a chance to thank our budding aquaculturists by fixing the plumbing in the bathrooms in the schoolyard. Due to unfinished plumbing, the 450 high school students have spent the last two years walking past a beautifully constructed locked building to use an outhouse (two holes in the ground) in the back of the schoolyard. The locked building contained brand new men's and women's rooms complete with 8 flush toilets, sinks, and showers! This facility had never been used because the plumbing was never completely finished and the earthquake had



*Previous latrine for 450 students+ faculty*

damaged most of what had been done. The solution we decided on was to pump water from the well into a cistern placed on the roof of the latrines that could be used to fill up the tanks of the toilets. We left the school with four working flush toilets, a new well, and the school's administration has been instructed on how to maintain the new facilities. Hopefully this will help improve the health and quality of lives of the dedicated students and faculty at the Henry Christophe School.

*The (now) fully functioning latrine*

Overall, the Aquaculture Learning Center seems to meeting its design objectives and it was rewarding to see the enthusiastic responses of the Henri Christophe administration and students regarding the new pond and the ALC project. We are receiving (on-time) bi-monthly water quality and fish growth reports showing that mortalities have been minimal, water quality has remained stable, and fish are feeding well (FCRs <1.5) and have more than tripled in size. This news has instilled confidence that the operations will continue to run smoothly and everyone is looking forward to the first harvest!

**AwF Funds utilized in Haiti 2011 –**

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| Local Haitian labor (concrete work, new well). | 2,400.00 |
| Translation and local transportation services | 187.00 |
| Fish Feed (purchased in Haiti) | 400.00 |
| Fingerling purchase in Haiti (2,000 @ 0.31 USD) | 620.00 |
| Aeration equipment, electrical wiring and plumbing | 2,300.00 |
| Dry-Lock™ paint for concrete (purchased in Haiti) | 189.00 |
| Gasoline pump for well | 285.00 |
| Haitian Labor to collect biofilter media | 8.00 |
| Haitian Labor to build fish screens | $100.00 |
| Payroll for teacher, security, and maintenance (2mo @ $200/mo) | 400.00 |
| Shipping (over-sized baggage fee for hardware, pumps etc.) | 200.00 |
| TOTAL | $7,089.00 |

AwF Funds used to develop a Haitian made fish feed will follow. This research is being conducted at our facilities in Woods Hole in collaboration with Novus International and AwF.