The Coalition of Reef Lovers (CORL)

CORL 2007-2008 Annual Report

CORL Introduction:

The Coalition Of Reef Lover's (CORL) a 501-(c)-3 organization was formed in 1999 to give those who care about the world's coral reefs a way to directly and indirectly contribute to the protection and sustainable use of the world's coral reefs. CORL understands that because of the current rapid degradation and loss of the world's coral reefs, immediate action is necessary. Some predictions have up to 90% of the world's coral reefs destroyed with in the next 30 to 40 years. Global Warming is the greatest threat facing the coral reefs future; it alone could cause the extinction of thousands of coral reef species. Pollution, deforestation, over harvesting, improper subsistence fishing, coral stone harvesting for construction of buildings and roads, careless recreation and acidification are just a few problems affecting the coral reefs.

A large percentage of the countries whose borders contain coral reefs are underdeveloped, and many of their problems can be linked to poor environmental education and planning. Any use of the coral reef resources within their boundaries should not only be sustainable, but also be beneficial to the preservation of the coral reefs. The coral reefs of many Small Island Nations are their one and only exportable natural resource. Some of these nations still depend upon their coastal areas and reefs to supply them with up to 90% of their dietary protein.

Sustainable use and a sustainable rate of development will be two of mankind's greatest problems to overcome in the next century. In the poorer nations a sustainable rate of growth will be a difficult goal to reach with their limited resources. Their resource usage must be made sustainable with broad benefits so development can be progressive, with minimal environmental impact.

The Marine Ornamental Industry provides many small island and developing nations with an outlet for the use of their coral reef resources giving more value to the coral reefs and providing a renewable resource when properly conducted. These measures can help insure their long-term protection. CORL helps villages and communities setup and develop sustainable resource usage. While providing them with an outlet to sell products to the MOI concurrently with restoring their reefs and recovering lost habitats.

The Coalition of Reef Lovers (CORL) is a Conservation organization whose goals are the preservation of the world's coral reef habitats its current President Michael R. King. CORL is mainly operated by volunteers who donate their time and resources.

Changes in the Mission Statement

Current and past Mission Statements: will be on the web site at www.corl.org when it's updated. Several changes were made in the mission statement in FY 2007-2008 that removed redundancies and gave a better understanding of its goals and how we will strive to meet them. {Link to Old Mission Statement). Because any Mission Statement Change is an

important event the New Mission Statement is provided in this update for your review and comments.

COALITION OF REEF LOVERS

A Not for Profit (501-(c)-3) Environmental Organization for Coral Reef Conservation

CORL's Main Goal is to Preserve and Protect the World's Coral Reefs by:

1. Promoting innovative ornamental marine aquaculture ventures (both *in situ* and *in vitro*) to assist in funding and/or provide live stock subsidies for coral reef recovery programs.

2. Promoting and developing *in-situ* regional mariculture as a means for developing ecologically sound income generating regimes for developing countries and also serve as a means of for inspiring community reef restoration.

3. Encouraging, designing, and developing ecological friendly mariculture protocols, low impact and non destructive wild collecting methods, and state of the art marine life holding facilities.

4. Informing the global marine and reef aquarium hobbyist on ways & means to lessen their impact on the world's coral reefs by providing the latest information on issues that may threaten coral reef ecosystem future health and welfare.

5. Educating small island and developing nations on ways to lessen their aberrant human impacts and increase their knowledge of environmental awareness: to teach how to live together with the reef and not degrade it.

6. Helping to educate people of developed, first world nations to the problems facing the coral reefs and the need for their protection, especially with regards to the coral reef's role in supporting marine fisheries.

7. Working with government agencies, private industries and environmental organizations to help preserve the world's coral reef resources through cooperative and proactive management and education endeavors.

Please Note: The time that has been spent in American Samoa and abroad in other Small Island Nations has provided much insight in the needs of both the island community and the coral reefs. I expect the mission statement to undergo a bit more change in the future as we tailor our community based coral reef farming and restoration projects to better fit with the needs of the communities we serve (Mike King).

Year in Review FY 2007-2008

Economic problems lead to a lack of funding: With the continuing downturn of the economy has come a decrease in public donations we expect this trend to continue throughout the 2008-2009 Fiscal Year. To offset the shortage CORL volunteers are working on a series of promotional and fund-raising materials in 2007-2008.

Treasures Report:

Total CORL income for '07-'08 was $15,818.75

Expenses:

Salaries	$2,245.50
Rent utilities	$4,239.42
Travel	$620.00
Supplies and equipment	$6,465.07
Misc office	$300.00
Shipping	$506.00
Total expenditures	$14,375.99

Income:

Starting Balance	**$279.81**
NFWF Phase 3 funds	$10,126.00
Contracts DMWR	$1,783.50
Donations total	$3,909.25
Total Income	$15,818.75
Year End Balance	**$1,722.57**

CORL-American Samoa project cutbacks:

Because of the budget shortfall one CORL project was ended and 2 downsized these were: The Alofau Community Coral Farm center closed in October 2007, Funds needed to reopen $5,500.00/year, Under the Waves video series cut back by 50% (3 episodes) cost per episode $2,500.00 shortfall $7,500.00, Video Postcard 2008 rescheduled for 2009 cost about $4,000.00.

2007-2008 Accomplishments.

Funded Projects: Carried over into FY 2007-2008

CORL was able to accomplish all but two of its project objectives for the NFWF Pollution Project.

1.) (non-listed project objective) We still need to publish a project page on the website for the CORL-AS / NFWF Coral reef pollution identification and reduction in American Samoa Project (if you're viewing this report on the CORL website this objective will have been completed).

2) A final printed report for submission to a peer reviewed journal on the 2006-2007 CORL/NFWF project (Stress Stream Analysis) needs to be completed. This objective is being undertaken but will not be completed until we have completed the Stress Stream work in two additional villages in the 2008-2009 FY.

CORL-USA Projects.

Coral Reef Coloring Books:

Three Coral Reef English Alphabet Coloring books have been completed and two more coral reef coloring books are currently in production. Two 26 coloring page books and a 52 page coloring book are available for purchase. These coloring books will be listed along with others on the updated CORL website.

CORL-State Side Office:

The CORL-USA office remains closed to the public. We are currently contacting local foundations in search of funding support to acquire a permanent office in the Grand Rapids area. This new office will serve as an educational resource for both formal school education and informal education of the public to the wonders of the coral reef ecosystems and their plight. This state side office will serve all of CORL's branches as a multimedia production facility to produce coral reef awareness and education programs for local and Island usage. In addition to education this office will serve as a holding area for our aquacultured corals from the islands and as a staging area for equipment and supplies needed for the CORL branches abroad.

CORL Video Library:

The transference of over 300 hours of video footage (underwater and above) from video tape to Archiving DVDs has been started. The video footage being archived is from the last 10 years taken in American Samoa and around the world at CORL projects and events. This video library when complete will be entered into a searchable data base that will be located at the CORL-USA office and open to public viewing and use by students and hobbyist. In addition to the Video Library a book library will be created also in the future.

CORL Video productions:

To better inform coral supporters and volunteers a 2000-2007 CORL DVD video update was created in addition to the standard annual progress report. The final update video has been added to several of the DVD videos currently being sold or offered as sponsorship premiums. A 2007-2008 CORL update DVD video is currently in production and will replace the previous year's production when completed. Anyone wishing to receive a copy of this video can order one separately or by purchasing one of the CORL DVD video productions which contain it as a bonus. All DVD video productions and descriptions will be listed on the new website.

In addition to the CORL update videos we have a new video currently in production about the Marine Ornamental Industry that follows the fish and corals from the reef to the hobbyist aquarium. This DVD video titled simply *From the Reef to your Aquarium* will be made available starting in early 2009.

Aquariums in the Classroom:

This CORL project continues to move forward as we complete the educational videos and develop the lab studies that will be a major component. We are currently seeking volunteers to help create a teacher guide book and to work on the creation of several labs for the students. If you have the time and wish to help email Mike at Mike@corl.org.

CORL Work in American Samoa (CORL-AS)

CORL-AS Office:

CORL started a full time CORL branch in American Samoa in the spring of 2003. American Samoa (Am.S.) remains an ideal place to study the problems that CORL will run into in its implementation of its self supporting coral reef and coastal management program throughout the Pacific and Indo-Pacific. Almost all of the problems associated with coral reefs world wide exist in Am S. along with a few that are associated with the development of Small Island Nations from a substance way of living to a monitory one. The Coral reefs of American Samoa range from very poor in Pago Pago Harbor to very good in the Manua Islands. The rapidly growing population of Tutuila (60,000 on AS Main Island) creates a high demand upon its natural resources and that demand is growing with its population. Am.S. has already made a large shift from a substance way of life to a monitory one, and with this change a devaluation of its coastal resources and degradation of the Am. S. coral reefs has occurred. The problems associated with the low values placed upon the reefs today are compounded by the high population pressures and poor land use planning and enforcement. This problem occurs not only in Am. S. but throughout the Developing and Small Island Nations. CORL helps address this devaluation of resources by creating new eco-beneficial uses of both the coral reefs and their resources (coral and invertebrate aquaculture for restoration and village based industry along with ecotourism). This returns monitory value to the ecosystems and creates incentive to protect them while preserving and restoring sustainable substance usage.

American Samoa's coral reefs are about to be subjected to more stresses, current increases in shipping, energy, and food cost are now driving more Samoan's back to their traditional sources, the coral reefs and terrestrial plantations. This means more fishing pressure on the remaining coral reefs and more stresses arriving from their watersheds from increased land based pollution.

American Samoa being a United States Territory also provides a stable government to conduct research. American Samoa does have one draw back, the number of coral and invertebrate species is low compared to that of other nations closer to the center of the Indo-pacific triangle of coral species diversity. We see this as more of an opportunity to develop the methodology to increase the coral farming potential to produce aquacultured organisms better suited and more desirable for the Marine ornamental market.

CORL-AS office Relocation:

The CORL-AS office has been located in the village of Nu'uuli village since early 2006 in 2008 we were offered a new house in the village of Amouli, while this house is further from the Nu'uuli coral farm and the main population area it lies only a mile away from the Alofau coral farm and is 3 times larger than the former office area. The water quality off shore from this house is very good and we have applied for a land use permit to create

a land based coral holding area. If funding is available to acquire a larger dwelling in Nu'uuli in the future a second coral farm office and educational center could be opened up in Nu'uuli village.

CORL and Department of Marine and Wildlife Resources MOU

On April 24 2008 the Coalition of Reef Lovers and the American Samoa Governmental Department of Marine and Wildlife Resources (DMWR) signed a Memorandum of Understanding that solidified their working together to fulfill their similar objectives of their Missions which include the Preserving, Protecting, Restoring and creating Sustainable uses of American Samoa's Coastal habitats. The MOU is posted on CORL's web site www.corl.org.

CTSA Alofau Coral Farm Project. 2005

The CORL Coral farm project in Alofau Village which was started with funding by the Center for Tropical and Subtropical Aquaculture (CTSA) continues to produce corals for Alofau's lagoon reef rehabilitation project. Second to fifth generation aquacultured corals have been planted within the lagoon to recover lost coral cover and to provide future sources of coral fragments that will be sold to the Marine Ornamental Industry. So far 12 hard coral species and over 6 soft coral species have been propagated and planted.

Identification and Propagation of corals that show a resistance to temperature induced bleaching events:

This is an ongoing CORL project that will be expanded in 2008-2009 with the assistance of funding from the National Fish and Wildlife foundation. Since 2003 CORL members have been monitoring corals in Alofau lagoon during bleaching events to identify coral colonies that are resistant to temperature induced bleaching. Results of the monitoring reviled one coral colony of *Acropora formosa* that is able to withstand the higher water temperatures without expelling its symbiotic algae. This coral colony supplied cuttings that were raised and placed in several locations within the lagoon, when the high water temperatures returned these planted colonies all survived while the wild colonies that grew from remnants of the bleached colonies near by again bleached and died back. So far the coral colony that covered approximately 12sq feet has been expanded to over 800sq feet in size. In 2008-2009 cuttings from this colony will be transplanted to Nu'uuli lagoon where they will be planted for grow out and further propagation and coral reef rehabilitation.

Nu'uuli Village Coral Farm:

In 2007 CORL started work on a second coral farm in the village of Nu'uuli. The project initiated with the cleanup of the former Department of Marine and Wildlife's giant clam holding and grow-out area with permission given by Director Ray Tulafono. CORL workers 1st removed the old tuna netting from all the clam cages as it was an entrapment hazard for fish and Sea Turtles. Work has continued with the cutting down of all remaining netting from the former bait holding project and the filling of coral rubble and planting of corals within the former clam cages. In July 2007 the DMWR assisted CORL in the attempted removal of the remaining tuna netting. Unfortunately over 90% of the netting remains, much of it being entangled within living corals of buried on the sea

floor. The remaining netting will be removed by CORL staff with assistance by the DMWR as work progresses on the coral farm. In FY 2008-2009 this coral farm will be expanded with funding supplied by the NFWF coral farming grant. The Nu'uuli coral farm will be used for both coral reef rehabilitation and to supply aquacultured products to the Marine Ornamental Industry.

Coral Reef Pollution Reduction in American Samoa NFWF funded project (2006-0090-024)

Pollution identification and Reduction study in four villages and 1 control Alofau, Amaua, Auto, Afulei and Vista. Phase 1 was completed during the 2006-2007 FY. NFWF funding $34,612.00 CORL In-Kind match $75,252.00

Phase 1: Nov 1 2006 – July 1 2007 all objectives Completed

- Conduct a total of 6 workshops (2 per village) on Awareness and Action
- Map streams, test water quality, and identify possible pollution sources in the 4 study villages
- Collect water samples from village streams and shoreline springs 1 to 2 times a week
- Conduct analysis of water samples using 8 parameters
- Carry out data collection and input for stressed stream analysis for each stream
- Set up water quality monitoring stations

Phase 2: all objectives Completed

- Conduct at least two cleanups of streams, beach, and coral reef areas per village
- Collect data on amounts of trash and debris collected from each area and number of volunteer hours contributed; record data by village
- Create four five-minute videos (Coral Reef Awareness)

Phase 3: One objective yet to be completed

- Conduct a results workshop in each village to provide study results to village councils and community members
- Compile final project report and create a project and results paper to submit for peer review* (unmet objective set to be completed in 2008-2009)
- Create one 30minute project and results video
- Submit final report to the NFWF

The results of the testing show that the major source of Ammonias, Nitrites, and Nitrates comes from piggeries and inadequate septic systems along the streams and shorelines. The testing for Phosphate showed a wide concentration range from one day to the next. The base line level being between .51ppm (parts per million which is equal to mg/l) and .95ppm in water samples before the stream entered inhabited areas of the villages to an average of 2-4ppm before they emptied into the ocean. The stream mapping and pollution source investigation show that many houses discharge their waste water from sinks and washers (This water is called grey water as it does not contain fecal waste material)

directly into the streams or drainage ditches that empty into the streams. When we looked at them as a possible source of phosphates, we were at first not quite sure as Phosphates were eliminated from most soaps and detergents made and sold in the USA back in the late 1970's. After investigating a little we concluded that the source was indeed the grey water pipes along with washing and bathing directly in the streams. So where were the Phosphates in the grey water come from? Well the answer was found in the local village stores where soaps and detergents made in the USA are being replaced by the cheaper foreign soaps which can be made up of 80% Phosphates or more. One water sample taken in Auto (after their village water line was broken) showed a reactive phosphate level of 318mg/l, that's about 623 times the normal amount found in their stream. Where did it come from? The answer was 100' upstream from where the sample was taken; a family was doing their washing in the stream using the a foreign soap that contained a very high amount of reactive phosphate.

Why are the phosphate levels important? Phosphate is the main nutrient that causes algae growth and algae when it grows too much can choke out other plants and overgrow corals killing them. The rate of algal growth is proportional to the supply or input of phosphorus (Phosphates). Since one pound of phosphorus (Phosphate is a chemical form of the element Phosphorus) can grow 700 pounds of algae the amount of damage caused by excessive phosphorus inputs from the foreign soaps and detergents can be very large.

What's happing in Alofau's Lagoon? CORL has been working in Alofau for several years doing cleanups and restoring their coral reef area. During our work we noticed a change in the quality of water in the near shore area, and the growth of a thick algae bed spreading across the bottom overgrowing a turtle grass bed where the green sea turtles usually feed. This overgrowth can be seen in the photos provided on our web site. Photo 1 shows the area in 2003, photo 2 in 2005 and photo 3 in early 2007. These photos show the turtle grass bed (photo1) and its overgrowth (photo 2) by cyanobacter (an algae like bacteria), and then further overgrowth by turf alga in photo 3. None of the original turtle grass bed survives today and the Green Sea turtles don't seem to like eating the turf alga that replaced it. The unwanted turf alga growth has also been spreading toward the corals in the lagoon and has smothered some coral colonies resulting in their death (photo 4). The turf alga also acts as a fine sediment trap creating a very soft sediment bottom under the algae where a hard sand bottom once was, this also destroys the areas shell fishery.

What needs to be done? The reduction of waste water entering our waterways from the sinks, showers, and washers will take time and money as will the redesigning and relocation of the piggeries so they create less pollution. The quickest action and least expensive to undertake that will decrease our nutrient pollution problem is the immediate banning of all high phosphate soaps and detergents from importation into the Territory. The Governor of American Samoa, Togiola T.A. Tulafono initiated this action by including a ban on "the importation of all high phosphorus (greater than 11%) detergents "as of October 1, 2007. in his Executive Order NO. 010-2007 of 21st of August 2007. This Executive Order was presented to the People of American Samoa and the visiting United States Coral Reef Task Force (USCRTF) during the August 2007 meeting in American Samoa. This Executive order was an order to recognize "The importance of the American Samoa Government's commitment to ameliorate global climate change and its

negative effects on the Territory; setting forth ASG's short and long-term commitments to this worthy effort."
This measure alone if enforced will greatly reduce the phosphate nutrient pollution problem and reduce the damage being done to streams and coastal areas including the coral reefs in American Samoa.

Phase 2 of this study continued to identify and measure the sources of pollution. The data collected was used in Phase 3 to create an easier to understand graphic map of the condition of the streams in the study area. This visual guide was created using Stressed Stream Analysis Methodology and was provided to the village councils so they could act upon the problem areas and reduce the pollution sources. A full report and a project video was created for any village or community that may wish to do a similar study in the future, this video is available on our website along with a in-depth Project report.

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CORL-AS branch Educational Productions:
Video DVD's

The American Samoa Branch of CORL has completed 3 educational DVD Videos. Two episodes of Under the Waves of American Samoa a DVD video series on American Samoa's Aquatic Habitats and one project video on the NFWF pollution project.
These videos along with others are available through our website.
CORL also produced 5 Video ads for the Department of Marine and Wildlife Resources, and 6 coral reef awareness videos (4 for the NFWF pollution project (as a funding match requirement) and two on our own.
We are hoping to create at least two more episodes of Under the Waves of American Samoa in the 2008-2009.
UTW Episode 3: American Samoa's Tide and Splash Pools
UTW Episode 4: American Samoa's Coral Reefs Past Present and Future

Coral Reef Coloring/Activity Books

Educational coloring and activity books are currently being created as one way to create funds for both the main CORL office and its branches. One 26 page Samoan Alphabet Coral Reef coloring book has been completed and so far one sponsor (Morris Scanlan Services) has stepped forward additional sponsors are needed to cover the cost of printing 8,000 copies to be distributed free on Island to children ages 2-6.

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New 2008-2009 CORL-AS projects

The Nu'uuli Ocean side stress stream analysis CORL project will measure and identify pollution sources from the stream and shoreline areas along the ocean side lagoon of the Village of Nu'uuli. This work is needed before and major habitat rehabilitation work can be undertaken as algae, sedimentation and Marine Debris are

ongoing problems in the targeted project area. This project will be updated on in the Nu'uuli coral farm project page on our website as work proceeds.

How you can help the Coalition of Reef Lovers Fulfill its Mission Statement:

Donations:
General and Item (project directed) donations are always welcomed. Donations can be made on line from our web site or through PayPal (www.paypal.com) services using our donations@corl.org email address. Donating individuals can receive sponsorship premiums for their donation that educate the public to coral reefs and what CORL is doing to help save them for the future.
Donations can also be sent to any of the CORL offices/Branches listed on the CORL website **www.corl.org**
If you wish to donate to any particular project just add a note to your check or when sending funds through Pay Pal. In the hopefully near future donations will be possible through the CORL USA office by phone also.

Supplies and Equipment Needed:
CORL-USA is currently in great need of a reliable vehicle, because this vehicle will be used by CORL the tax deductible amount allowed by the IRS will be its actual value not the cash value if auctioned off like many organizations do with motor vehicle donations. If you have a vehicle and would like to donate it email CORL's President at mike@corl.org.

The CORL office here and the branch offices overseas are in need of the following equipment and supplies if you can help with any of these needs it would be great.
Aquariums, stock tanks, and Marine Aquarium equipment (lighting, filtration and mechanical) this equipment will be used to provide and educational field trip experience to local schools and the public at the CORL offices (we would like to go as energy efficient as possible but seeing the aquarium equipment to do so is very new to the market we will accept any donations).
Computers Any Pentium 3 or newer computer system will be welcome, we however will not accept any old CRT (Cathode Ray Tube) Monitors as the newer LCD's are much more energy efficient and we wish to be as energy efficient as possible. Laptops and hard drives are also needed, we use Epson printers as most of them can be converted to Continuous Ink Supply Systems that not only save money but also eliminate the waste of ink cartridges produced.
Video Camcorders, **Cameras and camera gear**. CORL's main video camcorders at this time are in the Digital 8 and miniDV formats any donations of working camcorders in these formats will be very welcomed. WE ARE In Desperate Need of any Sony VX1000 camcorders at this time. The Sony VX1000 is our workhorse for creating the educational

videos where we use underwater footage, we currently have two Amphibico VH1000 underwater housings that utilize this camera model.
Snorkeling and Dive Gear. Any Mask, fins, snorkels or SCUBA Gear kids to adult sizes.
Video Equipment Repairs: The Tropical environment is very harsh on our video and electronic gear. Currently CORL has 3 Sony VX1000, 3 Sony TRV 510 Camcorders and one Sony miniDV walkman VCR in need of repairs. The Underwater housings we use also are in need of a servicing soon. Total funds needed to repair and service the equipment is around $4,000.00 any targeted donations will be most welcomed to repair these items.

To Receive Future CORL Progress Reports, or News updates:

Help us reduce cost and be more eco-beneficial please subscribe to our e-news and e-update list.
To do so send us an email to mike@corl.org and we will add you to our news and update mailing list.
We will not give your email address to anyone and it will be kept offline in a secure database.

If you must have a printed newsletter let us know and they can be provided.
To acquire a printed Report Please send a self address stamped envelope to:

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