

RisingTides – Expedition 2010

Fiji



Marine Biologist Marilyn Villisoni, RisingTides Naturalist Claudia Richardson, and Marine Biologist Samanunu Simpson.

In January 2011, we met with Marine Biologists (University of the South Pacific) Marilyn and Samanunu who were performing reef surveys (utilizing *Reef Check* methodologies) in order to write an Environmental Impact Statement (EIS) for the Vuda Point Marina expansion. Brian and Claudia quickly volunteered their expertise and also seized upon this learning opportunity as well as spreading goodwill. Claudia aided the two researchers in the reef surveys performing substrate and invertebrate transects. There were six substrate surveys performed up current of the proposed marina expansion location. The area surveyed for invertebrates covered approximately 3.1 miles in length of the reef, from the Mangroves North of First Landing Resort to the North side of Vuda Marina's channel. Both areas were found to be comprised mostly of dead coral and rubble. There is some sand towards the beach area of First Landing, here Samanunu pointed out the reef and that the "Foot" created by the resort helps protect the beach and acts as a breakwater. Vegetation comprised of sargassum and algae that are both indicators of pollution. It was explained to Claudia that these plants feed off of the organic material present in the water caused by both pollution and silting. Invertebrates present were: two kinds of sea cucumbers; small crabs; eels; blue and brindle starfish; one large nudibranch was found; and a handful of chiton. For a large area of reef

covered, the condition of the reef and the minimal life found was indeed disheartening (although not for the developers). In the area directly in front of First Landing's Foot (see following photo), there were large colonies of the goby/shrimp pairs. This was explained that the fresh water runoff from the resort provides an environment that is conducive to both the goby and shrimp which are able to successfully live in the water mixture. Both Brian and Claudia volunteered to perform substrate survey dives on the slope off of Vuda Point, but due to poor visibility and dive equipment failure by Marilyn, the dives were aborted. However, Brian did dive to the bottom at a depth of 21 feet and observed that beyond the reef, the bottom was comprised mostly of silt and mud. He also noted small new coral growing at the edge of the reef and reported this to the researchers. Otherwise, Brian noted very poor visibility of three feet or less.



Vuda Point Marina, First Landing Resort, and Survey Areas

Of possible implications, Brian and Claudia have noted that there are local people who have been seen picking up animals off the reef at low tides, although not confirmed it is possible that the "Loliloli" sea cucumbers are seen in so few numbers due to the harvesting of this species. Men are also seen throwing fishing nets from the reef at Vuda

Point Channel. Therefore, development of this reef may have an economical impact to the local Fijians in this area.

Another note of interest is that men were seen breaking mangrove branches, and it was explained to Claudia that the mangrove branches are used by local fishermen to kill the fishes. The Mangrove branch contain a chemical that kills the fish when placed into the water, the fish can then be picked up for harvesting.

During discussions with the researcher, Claudia and Brian learned that water samples will be taken and sent for analysis. Claudia explained her concerns that the samples will not be a representative of the water during the peak boating season when the marina is in full usage and when the water appeared very dirty with floating sewage from the boats at dock. Also, the samples were collected during a time when there was extensive rain, so although there may be more silting present, the water is also flushed and appears to be less stagnant. The researcher said that they will take this into consideration and recommend monthly or bimonthly assessment.



Team attempts underwater survey

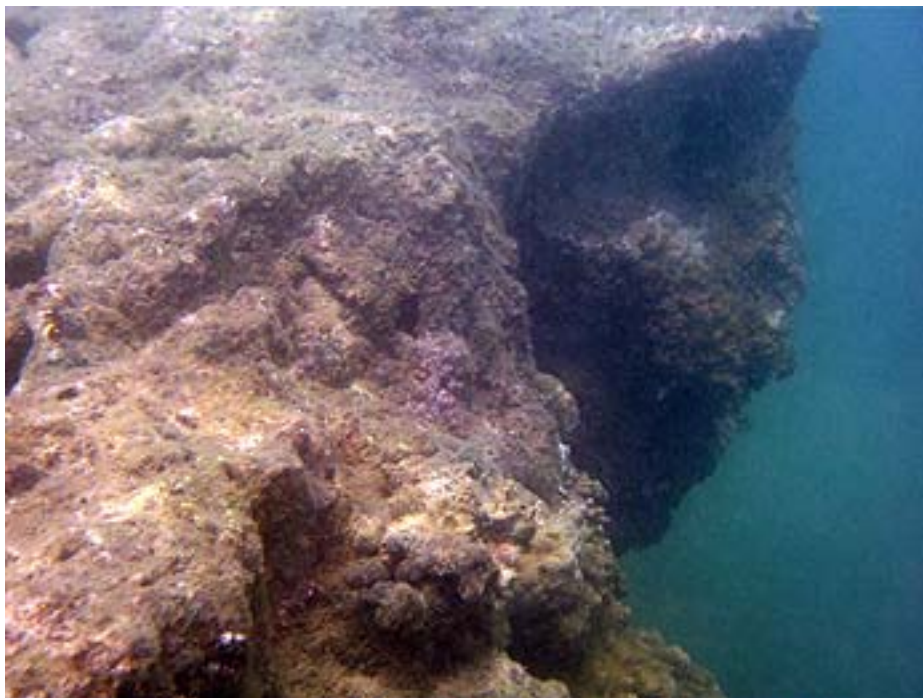
In the following week, Claudia got to go out on two more surveys with Marilyn and Samanunu. Claudia took pictures of the slope and the condition of the reef south and north of the Vuda Point Channel. Due to past activities (i.e. building of the channel), most of the coral is now dead and the bottom of the slope now consists of mud, silt,

sand, or rubble. However, it is evident that with the passing of time, the coral is on a slow comeback and there is life on this reef that will have to be taken into account.

The following are some of the photos taken:



Here coral rubble lies at the bottom of the slope



Dead Coral drops off to silty bottom



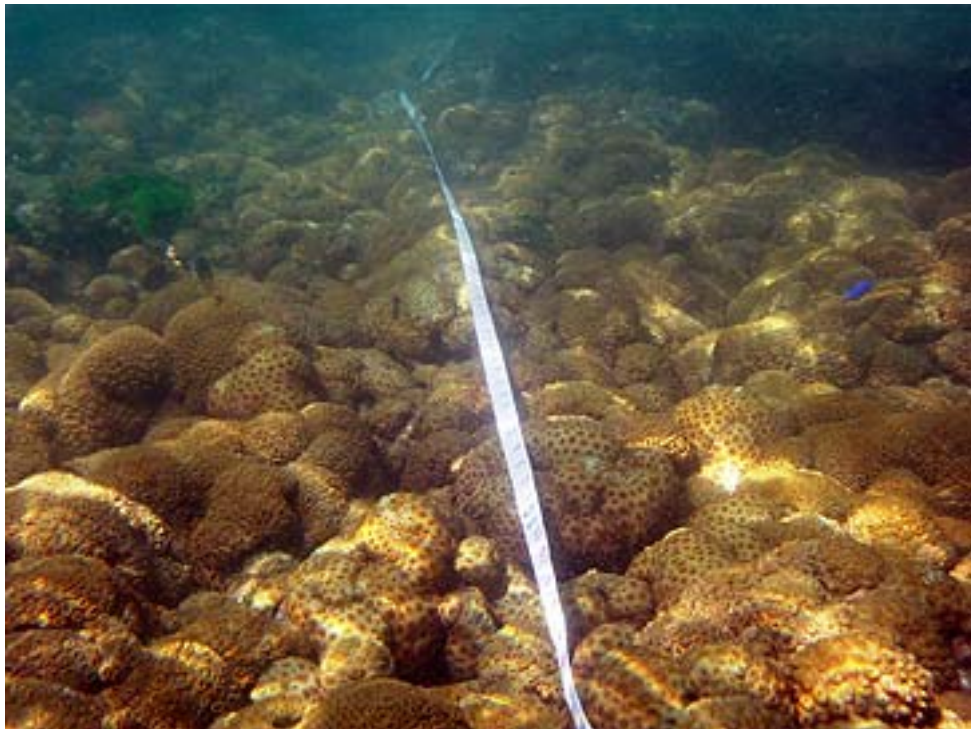
Blue Starfish can be found around these reefs



Zoanthids have taken over some parts of the reef south of the channel



On the north side of the channel branch corals are making a comeback



Reef transect survey being performed



Blue Damsels flourishing on the reef

It is also great to know that Fiji has EISs performed before undertaking construction that might impact the ocean and social economic environment. Shown in this report was only a small effort on our part in the extensive study that the two researchers performed. However, it was our pleasure to help where possible while getting a better understanding of the area we are visiting, and a chance to make new friends.