



## CORAL BAY COMMUNITY COUNCIL

Mail: 9901 Estate Emmaus, St. John, VI 00830  
8-1 Estate Emmaus, Coral Bay, St. John, U.S. Virgin Islands  
Coralbaycommunitycouncil@hotmail.com Phone/Fax: 340-776-2099  
[www.CoralBayCommunityCouncil.org](http://www.CoralBayCommunityCouncil.org)

### Wastewater Treatment and Nutrients

## **Waste Water Treatment – Nutrient Concerns**

Cromaglass treatment system (or similar) is proposed. There is local experience in the BVI with this manufacturer's system failing. It is assessed as cumbersome and relying on too many pumps as part of the treatment process. These pumps often go bad and the system breaks down. Also, the company is going through some ownership issues and there is even talk of the company shutting down. Technical support therefore might be difficult. Due to the proximity of the shoreline, there needs to be a contingency plan in case the system fails. This kind of system is called a sequencing batch reactor system (SBR).

Furthermore, Cromoglass systems, as well as some other onsite systems, have been found to fail to meet nitrogen standards critical for coastal areas, in the Pinelands of New Jersey, [http://www.nj.gov/pinelands/landuse/waste/2012 Annual Septic Pilot Program Report.pdf](http://www.nj.gov/pinelands/landuse/waste/2012%20Annual%20Septic%20Pilot%20Program%20Report.pdf), and in other places. EPA Region 2 has called out the failure of the systems in NY and NJ in coastal areas. The Nature Conservancy has written a set of watershed guidelines related to similar systems. (see below). Since runoff or subsurface introduction of nitrogen from WWTPs of this collection of 5 restaurants, residential and other retail facilities, not to mention shoreline restroom use by marina boat residents/tourists, will be a significant higher burden to the soils surrounding the bay, in an area known to have subsurface water flows and intermittent springs (it is called Spring Garden locally) – choosing the correct systems to fully treat wastewater is critical.

Additionally, these systems are often used to develop at greater densities in areas without sewer systems. However, as noted in the NJ Pinelands study, these systems shouldn't be used in residential developments at less than 20,000 square feet in order to meet nitrogen criteria. Again, it should be noted this development level is for residences. Commercial developments, with their higher usage, may require larger land areas to meet water quality criteria.

Another factor to consider is that, “[e]xcessive use of certain cleaning and laundry products as well as the use of certain medications can stress the bacteria that provide biological nitrification and denitrification (State of New Jersey Pinelands Commission 2012).” “ATS failure may result from ... flushing even small amounts of cleaning agents down a toilet may kill the bacteria, a common [alternative treatment system] problem (TNC 2007).”

The applicant should be required amend the plan prior to CZM approval to propose a different, higher quality WWTP system, using a better manufacturers specifications, that will not risk nitrogen runoff – or alternately reduce the size of the inhabited development. The threat of excessive amounts of nitrogen entering the bay from the applicant's proposed wastewater treatment systems, coupled with untreated stormwater runoff is serious and would significantly degrade the marine habitat. <http://nepis.epa.gov/Exe/ZyPDF.cgi/P1005FQK.PDF?Dockey=P1005FQK.PDF> The EPA National Estuary program has many strategies and recommendations for reducing nitrogen loading of ocean waters.

Further concerns and doubts about the acceptability of Chromaglass and similar system in this coastal area are raised in a report by the Nature Conservancy in 2007 for watershed managers in Connecticut.

<http://www.hvceo.org/septicalternativenatureconservancy.pdf> In this report, permittees are cautioned to be sure that nitrogen flows will not exceed allowed limits, as it has been unfortunately proven they often do with these systems – whether it is due to improper daily maintenance, system functioning or improper choice of system. Further “[s]pecial attention should be given to travel time and local site conditions to promote removal of viruses and bacteria. ... for small or environmentally sensitive sites, decision makers should be certain that transport times are sufficient to perform necessary pathogen removal. Alternative systems may not be appropriate in situations where proposed design flow, siting or sensitivity of the receiving environment to a particular contaminant requires that the system meet performance standards on a consistent basis (TNC 2007).”

Subsurface flow is planned for dispersing the outflow from the 4 WWTPs. It is our understanding that this counts as “injection wells” and, if so, EPA, rather than DPNR, has authority over the permitting and is known to be reluctant to authorize such facilities in environmentally sensitive shoreline areas. The applicant will need to receive these permits prior to beginning any land or water construction.

#### On shore restroom facilities for boaters:

Most boaters on less than 80 foot boats prefer to use on-shore showers and toilets when staying in a marina, to avoid the cramped quarters on the boat and using the holding tanks. In the case of this marina, the boaters will have to walk down a long dock and then cross a busy street to get to the marina restrooms. This will also increase the load on the WWTPs.

The applicant also needs to choose a WWTP design that is capable of handling the highly seasonal loads inherent in the planned marina business.

Without the local availability of a public sewer system and municipal treatment plant for sewage, it is required of the applicant to show the design and the ability to install and run an onsite WWTP that will provide the needed services – and protect the surrounding environment – both land and water based. Failure to provide a plan for a system with a known reputation of working correctly and scientific evidence that it will remove all required nitrogen and other pollutants prior to soil injection is grounds for denial of the application.

It is highly critical that nitrogen and phosphorous and other nutrients and contaminants are kept from entering the bay from this new shoreside development.

These are the reasons - the seagrass and coral habitats need to be protected.

#### Impacts on Coral Ecosystems:

<http://sanctuaries.noaa.gov/about/ecosystems/coralimpacts.html> it says:

“Coral reef ecosystems are complex, dynamic, and sensitive systems. Although they are geologically robust and have persisted through major climactic shifts, they

are however, sensitive to small environmental perturbations over the short-term. Slight changes in one component of the ecosystem affect the health of other components. Changes may be attributed to a number of causes but generally fall into two categories, natural disturbances and anthropogenic disturbances. Distinguishing between natural and anthropogenic disturbance is not always simple because the impacts of human actions may not be seen until well after the action has occurred or may not be seen until it is coupled with a natural disturbance. Also, some events that appear to be natural may have been influenced by human actions. Impacts may be direct or indirect and may be compounded where several occur. For these reasons, it is often difficult to make cause-and-effect linkages when reef degradation is observed.”

Seagrass : This source shows the science briefly in laymans’ terms that relate to maintaining the health of seagrass beds through the balance of nitrogen and phosphorous  
<http://floridakeys.noaa.gov/scisummaries/seagrassnut.pdf> (might want to include this 2 page pdf from noaa)

Prepared by Sharon Coldren and Patrician Reed, Coral Bay Community Council