

# TROPIC NEWS

DEPARTMENT OF PLANNING AND NATURAL  
RESOURCES

DIVISION OF FISH AND WILDLIFE

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## TAKE NOTICE OF OUR BEACHES

The Beach: It's a place that soothes the senses and coaxes the mind into a state of tranquility. It's ironic that the same place that creates such inner peace, is a by product of natural turbulence. Rocks grinds into granules of sand and ocean waves tear down cliffs swallowing small islands. Every beach is a battlefield between land and sea.

Ever changing, beaches are perhaps one of the most dynamic systems in the world. Sea level has risen by about a foot over the past century, be it from the thermal expansion of warming seas or from melting polar ice caps. Much is at stake since we are drawn to the coastlines and seem to be compelled to erect houses, hotels and other structures as close as possible.

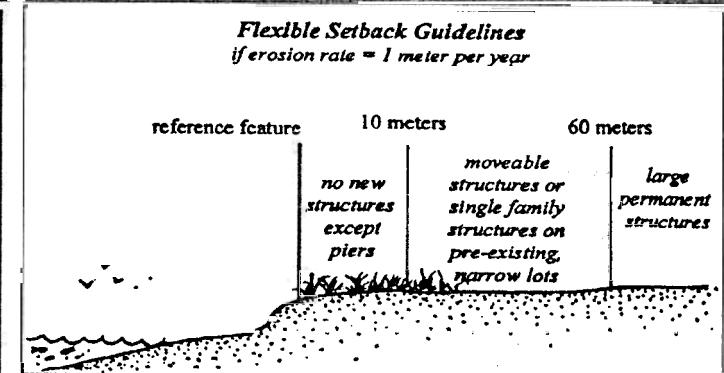
Today, throughout the Caribbean, beach erosion is common and extremely costly. Geomorphologist Gillian Cambers Ph.D., comments, "we desperately need to understand what's happening to our beaches. We can begin to do that by measuring them frequently. The next step is to manage them so that they don't disappear."

Since beach sand is in constant motion, the best way to avoid costly losses is to leave the beach plenty of room to move without doing damage. That means leaving ample space between building and roads and the high water mark.

On an undeveloped coastline, erosion simply causes the beach to reposition itself further inland. Whereas, on a developed coastline, there is nowhere for the beach to move. The result is the construction of expensive measures which include creating retaining walls, replenishing the beach with imported sand, or building offshore breakwaters parallel to the coast.

As coordinator of COSALC I, a program of UNESCO, co-sponsored by the UPR Sea Grant College Program, Dr. Cambers describes the process of establishing setback guidelines: "First you choose a stationary reference feature behind the high water mark. This might be a tree line, known as a permanent vegetation line, or a cliff. Then you establish development zones based on erosion rates. With an erosion rate of 1 meter a year you might move to prohibit any structure closer than 10 meters behind reference feature. (Piers and docks are logical exceptions) From 10 to 60 meters behind the reference feature, only moveable structures should be established. At 60 meters beyond the reference feature, any kind of structure is allowed. However, in many cases, lots are narrow and coastal residents simply do not own property beyond the 60 meter permanent structure mark.

*Flexible Setback Guidelines  
if erosion rate = 1 meter per year*



"This is a flexible and totally individual system based on information on beach changes particular to any given island. For instance if your beach is accreting, you might allow permanent structures in what would otherwise be only for moveable, single family structures. Adjustments can also be made for beaches experiencing low erosion rates."

Information for this article was gathered from the Oct.-Dec. 1994 issue of *Sea Grant in the Caribbean*.

## Environmental Education Materials

The Organization of Eastern Caribbean States National Resources Management Unit (OECS-NRMU) has developed a series of environmental education curriculum materials under a program call "Our Country Our People Our Future: Awareness Program on Sustainable Development." These materials provide the kinds of information and guidelines the elementary school system in the USVI should find very useful for its teachers.

The Eastern Caribbean Center Library at the St. Thomas Campus has one complete set. You may also write directly to the OECS-NRMU at:

P.O. Box 1383  
Castries, St. Lucia  
Telephone: (809) 453-6208 or 452-2146  
Fax: (809) 452-2194

and purchase a set of the manuals and "building blocks" directly from them or contact Dr. Laverne Ragster at (809) 693-1021.

## Quote

If we allow environmental deterioration to continue, man's fate may be worse than extinction.

-- Ron S. Boster

## On the Menu: Sea Urchins

Before 1973 sea urchins were considered pests, voracious predators of the kelp forest. In the late 1960's, recreational divers up and down the California coast organized urchin eradication events. They went in the water with hammers and smashed every urchin they could find. The divers were convinced the urchin's foraging habits were destroying beds of giant brown kelp (*Macrocystis pyrifera*), and kelp beds, everyone knows, provide food for and habitat for thousands of species of sea animals.

In 1968, Susumu "Sus" Kato, a marine scientist with National Marine Fisheries in Tiburon, viewed the practice with dismay. Japanese consumers love to eat sea urchin gonads which are commonly (and incorrectly) called "roe". A fishery for sea urchin soon developed around the Channel Islands and coastal areas from Santa Barbara to San Diego.

An average day's catch is about 1000 pounds. Urchins are trucked to a processing plant in Ventura or Los Angeles, where they are cracked open by workers who will place the golden roe on delicate wooden trays. The trays will be placed in cold storage containers and taken immediately to Los Angeles International Airport. Within 72 hours of landing on Navy Pier in Santa Barbara, the "Uni" will arrive safely at a sushi bar in Japan.

Sea urchin divers get about \$1.00 a pound for the day's catch and as much as \$2.25 during winter months. In the early days, divers made a mere six cents a pound. On the other side of the world, Japanese Uni-lovers pay \$10 to \$15 for two pieces. Some people say the divers are making a fortune but high boat maintenance and fuel costs, as well as tender's percentage can result in a break even-day.

In 1987, urchin divers led an effort to forge a limited-entry program, adopt a minimum size limit and collect an industry imposed landing tax. Then, in an effort to reduce harvests to sustainable levels, California Department of Fish and Game and industry representatives agreed in 1990 to increase closure and further adjust minimum-size rules. Today, the industry has been improved greatly by state regulations and cooperation from the divers.

Trees were saved by printing on recycled paper

## GOVERNMENT OF THE VIRGIN ISLANDS OF THE UNITED STATES

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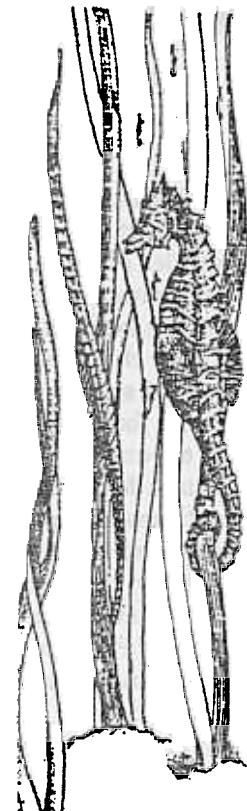
## SEA HORSES IN WATER BAY

That's right! According to Bezzel Ghent, Curator at Coral World Underwater Observatory, Sea horses can be found in Water Bay. In an effort to reduce over-population in the observatory tanks, 200 juvenile sea horses were released on June 20, 1995. The hatchlings are held for about 4-5 days and fed brine shrimp, in order to prepare them for life in the sea. Once in the sea, they will curl their tails around the long blades of the sea grass *Thalassia testudinum* and position themselves to feed with their long snout.

The sea horse is really a fish encased in protective bony rings. To swim they vibrate the dorsal fin at up to 60 beats per second, but at best move so slowly they can be caught by hand.

Sea horses engage in elaborate courtship dances in which male and female swim around each other. The female then deposits up to 600 brick red eggs in her partners' pouch and the male cares for them until they are hatched. The pouch is actually a uterus, the eggs being nourished by the male's blood. At the time of birth it is the male who must undergo the contractions and pains of labor.

The ultimate treat will be for divers in Water Bay to come upon a well established colony of these wonderful creatures. Let's keep our fingers crossed!



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