



Secondary treatment aeration pool Diego Garcia

Treatment of sewage in the Chagos Archipelago

All organic matter, such as sewage, draws oxygen out of the water as it decomposes, drowning fish and other animals and plants that need oxygen. There are also nutrients in sewage (nitrogen and phosphorous compounds in particular) that encourage algal growth which can crowd out and smother natural inhabitants. Too much nitrate is poisonous to people, and there can also be pathogens in sewage.

Complete treatment is carried out in three stages: *primary*, *secondary* and *tertiary*. *Primary* is the physical screening out of solid matter, and *secondary* treatment is the aeration of the sewage in ponds where air is pumped in. This permits the decomposition of the sewage while keeping the water oxygenated. Aeration also removes some pathogens. *Tertiary* treatment is expensive and involves removal of the nutrients, a stage most commonly found where the receiving waters are a lake or a river. As the "solution to pollution is dilution" tertiary treatment may not be needed where enormous dilution is available.

The preservation of the cleanest sea water in the world in Diego Garcia (see *CCT Factsheet 016*) is taken seriously by the US authorities, but tertiary treatment is not needed in Diego Garcia. The primary screened product is carefully burned and the aerators in the secondary treatment pools are more than sufficient to replace the oxygen. The effluent is then disposed directly into very deep seawater on the seaward (western) side of the atoll where there are currents, and where the enormous dilution is sufficient to disperse the nutrients. There is no trace of algal enhancement at or near the Diego Garcia outflow, and fish also congregate there indicating that there is no lack of oxygen.

Although there are no rules at present for the disposal of sewage by yachts, yacht owners should go outside lagoons to empty holding tanks. For yachts with no holding tanks, at busy periods when there are several yachts in a small area, effects of sewage input in that area may be deleterious (see *CCT Factsheet 029* on coral diseases).

The Chagos Conservation Trust is a charity (Registered in the UK No. 1031561), whose aims are to promote conservation, scientific and historical research, and to advance education concerning the archipelago. The Trust is a non political association.

If you would like more information on the publications or membership, please contact the Secretary (simonhughes@hughes-mccormack.co.uk) or visit www.chagos-trust.org