



## 紅潮對沖廁海水 水質的影響

水務署 Water Supplies Department

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### 利用海水沖廁

香港食水供應從來不能自給自足。自二十世紀五十年代末開始，香港已廣泛使用海水沖廁，有效地節省食水。現時全港約有八成人口已經使用海水沖廁，有效地減少對食水需求達兩成。

海水是經由海傍抽水站抽取及處理後才供應予市民使用的。雖然抽取的海水不須經過食水處理的程序，但仍須符合水務署規定的標準。海水先經隔網除掉泥石及較大的雜質，然後再以次氯酸鈉消毒，才供應給市民使用或輸往配水庫。

較細的微粒仍能穿過隔網進入海水沖廁系統，這些微粒會沉澱於水管、配水庫或儲水缸內。水務署會定期沖洗水管及清理配水庫以清除這些沉澱物。然而，物業管理公司亦必須定期清洗儲水缸，以協助維持沖廁海水水質。

### 紅潮及其對沖廁海水的影響

當大量的海藻迅速繁殖並擴散，便會出現紅潮。除非環境有利其繁殖（即炎熱天氣及養份充裕的環境），否則大部分海藻都不會持續多天。一般在大風時或暴雨後，紅潮便會於數天內消退。在本港海域發現的大部分海藻均無毒性及無害，但海藻的滋生會令海水變成不同顏色，例如紅色、棕色、棕紅色、深綠色等，同時亦有可能導致海水有異味。

水務署供應的沖廁海水是由海傍抽水站抽取的，因此當有紅潮出現在抽水站附近水域時，抽水站抽取的海水水質便可能被影響。

### 水務署對紅潮的應變方法

為減低出現水濁及異味問題，水務署將視乎情況於受影響的抽水站範圍採取以下措施：

- 1 加緊監測海水水質
- 2 增加次氯酸鈉的劑量，加強淨化海水功能
- 3 減少抽取海水，調動食水系統，將食水注入海水供應網絡中。並加大濾水廠的產量，補充所需的食水
- 4 儘可能於抽水站入口加設浮欄以儘量減少海藻進入進水渠內
- 5 當海藻消散或海水水質良好時會將海水配水庫注滿
- 6 清除積聚於抽水站進水渠內的海藻
- 7 於海水抽水站進水渠加裝更細密的(土工織物)隔網
- 8 於海水抽水站入口加裝淤泥隔屏網
- 9 清除積聚在抽水站進水渠的淤泥
- 10 沖洗海水輸水管

### 當用戶發現沖廁水變色或有異味時應怎樣?

水務署恆常密切監察由海傍抽水站抽取及配水系統內的海水水質，以確保供應給用戶的沖廁海水水質達到本署所訂的標準。若用戶發現大廈沖廁水變色或有異味，用戶應該先向大廈物業管理公司查詢，以查看問題是否源自大廈本身內部供水系統。如果內部供水系統沒有問題，用戶可致電本署熱線 2824 5000，查問居所的沖廁水水質是否正受到紅潮影響。如有需要，本署會安排職員視察用戶的沖廁水水質。



## Effect of Red Tides on Seawater for Toilet Flushing

### Seawater for Toilet Flushing

Since late 1950's, Hong Kong has been using seawater extensively for toilet flushing. The seawater flushing system is an effective way to conserve fresh water as Hong Kong has never been self-sufficient in fresh water supply. About 80 per cent of the population is now provided with seawater for toilet flushing, thus effectively reducing the fresh water demand by as much as 20 per cent.

Seawater is abstracted at the seafront pumping stations for treatment before supply. It is not treated to the same standard as fresh water but its quality still has to comply with the guidelines laid down by the Water Supplies Department (WSD) to prevent objectionable characteristics. Seawater is firstly screened by strainers to remove debris and large-sized particles. It is then disinfected by sodium hypochlorite produced on-site by electro-chlorination before being distributed to consumers or pumped to service reservoirs.

Small-sized particles will pass through the strainers and enter into the seawater flushing systems. They may settle inside pipes, service reservoirs and storage tanks. WSD regularly flushes water pipes and cleans service reservoirs to remove those small particles. However, property management agents should also clean their water tanks regularly to help keep up the quality of the seawater provided for toilet flushing.

### Red Tide and Its Effect on Seawater for Toilet Flushing

Red tide is the natural phenomenon caused by rapid and massive proliferation of algae. Most algal blooms do not last long unless the conditions favourable to their growth persist (i.e. sunny weather and nutrient rich environment). They often disappear within a few days under windy conditions or after heavy rains. Most of the algae species found in Hong Kong waters are non-toxic and harmless. However, the presence of abundant algae discolours the seawater to different hues, e.g. red, brown, reddish brown, deep green etc., and may make it smelly.

As the seawater provided by WSD for toilet flushing is abstracted from seafront pumping stations, the quality of the seawater may be affected whenever there is red tide in the vicinity of the pumping station.

### Measures Taken by the Water Supplies Department to Tackle the Effect of Red Tide

WSD will take the following measures at the affected salt water pumping stations as appropriate to minimise the discoloration and odour problems:

- 1 Step up monitoring of seawater quality.
- 2 Increase dosage of sodium hypochlorite.
- 3 Reduce the seawater intake rate to varying extent as necessary and augment the salt water supply with fresh water. Increase the output of the water treatment works concerned to meet the additional demand due to augmentation.
- 4 Deploy floating booms around the seawater pumping stations, wherever practicable, to minimise the intrusion of algae into the intake culverts.
- 5 Top up salt water service reservoirs whenever the seawater quality is good or when algal growth subsides.
- 6 Clear away any algae that may find its way and settle in the intake culverts.
- 7 Add finer (geotextile) screeners at the entrance or intake culverts of the seawater pumping stations.
- 8 Install silt curtains at the seawater pumping stations.
- 9 Desilt the intake culverts of the seawater pumping stations.
- 10 Flush salt water distribution mains.

### What Should You Do When You Find the Flushing Water Discoloured or Smelly?

WSD constantly and closely monitor the qualities of seawater at the seafront pumping stations and in the distribution system to ensure that the quality of seawater provided for flushing complies with the department's guidelines. When you find that the flushing water of your premises has become discoloured or smelly, you should first check with your property management agent to see if the abnormality is caused by problems of the plumbing system of your building. If it is not, you should call WSD's hotline 2824 5000 to check whether the flushing water quality is affected by red tide. WSD will arrange inspection of the flushing water quality of your premises as necessary.