

## EPD - Beach Water Quality

### Beach Water Quality in Hong Kong 2016

#### Our Mission:

**To safeguard the health and welfare of the community and meet conservation goals by working to achieve and maintain the Water Quality Objective for bathing beaches**

[Photo: The coastline of Hong Kong was embellished with white sand and clear water beaches]

#### Introduction

Hong Kong boasts beautiful beaches with fine sands and clean water along its extended coastline. These beaches attract millions of beach-goers to enjoy their seaside leisure time every month during the summer.

The objective of the Environmental Protection Department (EPD)'s Beach Water Quality Monitoring Programme is to monitor beach water quality and protect the health of bathers. This report summarises the beach monitoring data collected in 2016, the gradings of the beaches and the annual compliance with the Water Quality Objective (WQO) for bathing beaches.

[Photo: Charming beaches for bathers to enjoy their leisure time]

In 2016, the EPD monitored 41 gazetted beaches and three non-gazetted beaches in different parts of the territory. The gazetted beaches were monitored weekly during the bathing season from March to October, and EPD staff conducted field observations and collected samples for laboratory analyses of *Escherichia coli* (*E. coli*) as the bacteriological water quality indicator. EPD staff also took measurements of dissolved oxygen, pH, salinity, temperature and turbidity of beach water.

[Photo: EPD staff conducting water sampling and field data recording]

[Photo: Analysis of beach bacteriological water quality at EPD's environmental microbiology laboratory]

Hong Kong's beaches are assessed using a dual system: annual ranking and weekly grading which are both based on the *E. coli* level in beach water to indicate potential health risks associated with swimming. The annual ranking reflects the overall water quality of the beach over the entire bathing season, while the weekly grading denotes the recent water quality of the beach. Under the dual rating system, beaches are categorised into "Good", "Fair", "Poor" and "Very Poor". Those ranked "Good" or "Fair" meet the WQO for bathing waters.

[Photo: Water quality grading board displayed at the gazetted beaches]

## Annual Beach Ranking in 2016

All 41 gazetted beaches in Hong Kong complied with the WQO in 2016. Compared with the ranking in 2015, the number of beaches ranked as "Good" has decreased from 25 (or 61 %) to 18 (or 44 %) and the number of beaches ranked as "Fair" has changed from 16 (or 39%) to 23 (or 56%). This was mainly due to the combined effects of more rainfall and less bright sunshine in the bathing season of 2016. The cumulative rainfall recorded in the bathing season of 2016 was 17% higher than the average in the past 30 years (1986 - 2015) while the number of bright sunshine hours was 13% lower than that in the same period. Although the annual ranking of seven beaches have changed from "Good" to "Fair" in 2016, the changes in *E. coli* levels were within the normal range of fluctuation of the bacteriological water quality and had no overall adverse impact on the health of swimmers. No beach was ranked as "Poor" or "Very Poor" in 2016.

[Photo: The tranquil Tong Fuk Beach in Lantau Island]

The beaches with "Good" water quality ranking were located in the Southern (Hong Kong Island South), Islands and Sai Kung Districts. Nine of the 12 beaches in the Southern District were ranked as "Good" in 2016, including Chung Hom Kok Beach, Deep Water Bay Beach, Hairpin Beach, Middle Bay Beach, Repulse Bay Beach, South Bay Beach, St. Stephen's Beach, Stanley Main Beach and Turtle Cove Beach. Shek O Beach and Rocky Bay Beach continued to receive a "Fair" ranking, while the ranking of Big Wave Bay Beach has changed from "Good" to "Fair". Of the nine beaches on the Outlying Islands, six were ranked as "Good", including Cheung Chau Tung Wan Beach, Hung Shing Yeh Beach, Kwun Yam Beach, Lo So Shing Beach, Tong Fuk Beach and Upper Cheung Sha Beach. Silver Mine Bay Beach remained to be ranked as "Fair", while Lower Cheung Sha Beach and Pui O Beach have changed from "Good" to "Fair". Three of the six beaches in Sai Kung District were rated as "Good" in 2016 including Hap Mun Bay Beach, Kiu Tsui Beach and Trio Beach, while Clear Water Bay First Beach, Clear Water Bay Second Beach and Silverstrand Beach have changed from "Good" to "Fair". On the western side, all eight beaches in Tsuen Wan District and all six beaches in Tuen Mun District received a "Fair" ranking in 2016, among them Ma Wan Tung Wan Beach has changed from "Good" to "Fair".

[Photo: Dynamic and lively Shek O Beach on a beautiful sunny day ]

The water quality of Tsuen Wan beaches continued to be satisfactory and suitable for swimming after the commissioning of Harbour Area Treatment Scheme Stage 2A in December 2015. The seven beaches along Castle Peak Road had once been closed due to poor water quality before 2010. Since the completion of sewerage along Castle Peak Road in the beach hinterland and the commissioning of the Advanced Disinfection Facilities of the Harbour Area Treatment Scheme in March 2010, the water quality of these seven beaches has improved and met the WQO for bathing beaches. This has led to the gradual re-opening of all these beaches during 2011 - 2014 and maintained open since then.

[Photo: The relaxing Ma Wan Tung Wan Beach]

EPD also monitored three non-gazetted beaches in Hong Kong: Discovery Bay (a popular beach in Lantau Island), a sandy beach adjacent to Kiu Tsui Beach in Sai Kung, and a planned artificial beach in Lung Mei, Tai Po. In 2016, Discovery Bay has changed from "Good" to "Fair", largely due to occasional deterioration in water quality after heavy rain. The beach adjacent to Kiu Tsui Beach continued to be ranked as "Good", and Lung Mei as "Fair". Most of the village houses in the Lung Mei area have been connected to the public sewerage network, and the remaining connection work is still ongoing. Together with the pollution abatement measures to be implemented, the water quality at Lung Mei will continue to improve.

### **Weekly Beach Grading in 2016**

To keep the public informed of the latest beach water quality condition, the EPD issues weekly gradings of all open gazetted beaches and one non-gazetted beach (i.e. Discovery Bay) through weekly press release, EPD's websites, the beach enquiry hotline, GeoInfo Map of the GovHK website and noticeboards at the beaches.

[Photo: South Bay Beach embraced by green mountains]

In 2016, the water quality of beaches in the Southern District was largely satisfactory. All ten open gazetted beaches received "Good" or "Fair" grading most of the time in the bathing season. Deep Water Bay Beach and Middle Bay Beach were once rated as "Very Poor" in early September and late July respectively after heavy rain, while Big Wave Bay Beach was rated as "Very Poor" in mid-June due to a series of rain events. South Bay Beach had the best water quality, achieving "Good" grading 97% of the occasions.

The beaches on the Outlying Islands generally had decent water quality. Hung Shing Yeh Beach and Upper Cheung Sha Beach achieved "Good" grading on all rating occasions, while Cheung Chau Tung Wan Beach, Kwun Yam Beach, Lo So Shing Beach and Tong Fuk Beach were graded as "Good" over 90% of the time. Lower Cheung Sha Beach was rated as "Very Poor" twice in early May and early August respectively after heavy rain. After Silver Mine Bay Beach was rated as "Poor" or "Very Poor" in the rainy month of April, its water quality continued to improve starting from early summer, and was rated as "Good" toward the end of the bathing season.

[Photo: Trio Beach - an escape from the hustle and bustle of the city]

The Sai Kung beaches were generally suitable for swimming, mainly with "Good" or "Fair" weekly grading. Clear Water Bay First Beach, Clear Water Bay Second Beach and Silverstrand Beach were rated as "Very Poor" on one to three occasions, which were mostly associated with heavy rain. Hap Mun Bay Beach had the best water quality achieving "Good" grading on all rating occasions.

The water quality of the beaches in Tuen Mun area was comparable to that in the previous years, with usually "Good" or "Fair" weekly grading. Butterfly Beach was graded as "Very Poor" on three occasions in July after heavy rain, and improved to "Fair" grading since mid-August.

The water quality of the beaches in Tsuen Wan was mostly satisfactory. Ma Wan Tung Wan Beach was either rated as "Good" or "Fair" grading. The other Tsuen Wan Beaches maintained mostly at "Fair" grading, in which Casam Beach, Hoi Mei Wan Beach and Lido Beach were improved to "Good" grading toward the end of the bathing season. Ting Kau Beach was once rated as "Very Poor" after heavy rain in mid-August.

[Photo: Casam Beach - water quality steadily improving in recent years]

### Water Quality Trend

The beach water quality in Hong Kong is able to fully comply with the WQO, and suitable for swimming, for the last seven years. The percentage of beaches complying with the WQO had changed from 74% in 1986 (29 of 39 beaches) to 63% (26 of 41 beaches) in 1997, and then increased to 100% since 2010 for all 41 gazetted beaches.

### Comparison of annual beach ranking of gazetted beaches in 1986, 1997 and 2016

Year	WQO Compliant		WQO Non-compliant	
	Good	Fair	Poor	Very Poor
<b>1986</b>	23.1%(9)	51.3%(20)	17.9%(7)	7.7%(3)
<b>1997</b>	24.4% (10)	39.0% (16)	29.3% (12)	7.3% (3)
<b>2016</b>	43.9%(18)	56.1%(23)	-	-

( ) No. of beaches

Note: Two Beaches degazetted in 1995 were excluded from all the statistics above.

Back in the 1980s, many beaches were closed, such as Cafeteria Old Beach, Castle Peak Beach and Silver Mine Bay Beach, or on the verge of being closed (e.g. Middle Bay Beach and Repulse Bay Beach) due to poor water quality. There was a further drop in compliance rate in the mid-1990s due to population growth particularly in the new town areas. In the last decade, there has been progressive improvement as a result of enforcement of environmental legislation, extension of the sewerage network, provision of new sewage treatment facilities across the territory including the beach hinterland, as well as implementation of the Harbour Area Treatment Scheme. Major improvement measures implemented in the past are summarized in the following table.

<b>Major improvement measures for the beaches since the implementation of beach water quality monitoring programme in 1986</b>	
<b>1986 – 1990</b>	<b>Beaches with Water Quality Improvement</b>
Implementation of the Livestock Waste Control Scheme under the Waste Disposal (Livestock Waste) Regulation.	Most beaches, particularly Silver Mine Bay Beach
Declaration of the Southern Water Control Zone (WCZ) under the Water Pollution Control Ordinance (WPCO) for legislative enforcement.	Southern beaches
Interception and diversion of polluted storm drains at beaches in Southern District.	Southern beaches
<b>1991- 1995</b>	
Implementation of chemical waste control.	All beaches
Declaration of the North Western WCZ under the WPCO for legislative enforcement.	Tuen Mun beaches
Diversion of polluted storm water drains away from Castle Peak Beach.	Castle Peak Beach
Provision of public sewers for So Kwun Wat and Sam Shing Estate.	Tuen Mun Beaches
Commissioning of Stanley Sewage Treatment Works (STW).	Stanley Main Beach
<b>1996 - 2000</b>	
Full implementation of the WPCO in all WCZs.	All beaches
Commissioning of the Shek O Sewage Screening Plant and diversion of polluted storm water drains at Shek O Village.	Shek O Beach
Completion of all major works under Southern Sewerage Master Plan.	Southern beaches
Commissioning of the new 2 km long Pillar Point sewage submarine outfall.	Tuen Mun beaches
<b>2001 - 2005</b>	
Completion of Harbour Area Treatment Scheme Stage 1.	Big Wave Bay, Shek O, Rocky Bay Beaches
Provision of public sewers in the Silverstrand area.	Silverstrand Beach
Full operation of the Sham Tseng STW.	Beaches along the Tsuen Wan coast
<b>2006 - 2016</b>	
Commissioning of the Advance Disinfection Facilities at Stonecutters Island STW.	All Tsuen Wan beaches
Extension of the public sewerage network to the beach hinterland along Castle Peak Road.	Beaches along the Tsuen Wan coast
Full operation of the Harbour Area Treatment Scheme (HATS) Stage 2A.	Beaches along the Tsuen Wan coast

Through continuous efforts of the government to implement pollution abatement measures, there was significant improvement in water quality at the beaches in various districts over the years, and the beaches have consistently complied with the WQO in recent years. With significant improvement of water quality at beaches in Tsuen Wan since 2010, all of Hong Kong's gazetted beaches have now achieved the required standard for swimming for the seventh consecutive year.

## Compliance with WQO at gazetted beaches, 1997 - 2016

[Figure: Compliance with WQO at gazetted beaches, 1997 - 2015]

Water quality trend lines of gazetted beaches over the last 31 years are included in this report to show the changes over the years. More in-depth background and details of the beach monitoring programme are available at the EPD's [Hong Kong Water Quality Resource Centre thematic website \(http://wqrc.epd.gov.hk\)](http://wqrc.epd.gov.hk) or its [beach water quality thematic website \(http://www.beachwq.gov.hk\)](http://www.beachwq.gov.hk), which provides user-friendly access to the annual beach reports as well as data published since 2000.

[Photos: Happy youngsters having fun at the beach]

## The Monitoring Programme

### Beaches monitored by the EPD

Southern District	Sai Kung District	Tsuen Wan District	Tuen Mun District	Islands District	Tai Po District
Deep Water Bay	Kiu Tsui	Ma Wan Tung Wan	Butterfly	Silver Mine Bay	Lung Mei**
Repulse Bay	Hap Mun Bay	Anglers'	Castle Peak	Pui O	
Middle Bay	Trio	Gemini	Kadoorie	Lower Cheung Sha	
South Bay	Silverstrand	Hoi Mei Wan	Cafeteria Old	Upper Cheung Sha	
Chung Hom Kok	Clear Water Bay First	Casam	Cafeteria New	Tong Fuk	
St. Stephen's	Clear Water Bay Second	Lido	Golden	Cheung Chau Tung Wan	
Stanley Main	Kiu Tsui (New)**	Ting Kau		Kwun Yam	
Hairpin		Approach		Hung Shing Yeh	
Turtle Cove				Lo So Shing	
Shek O				Discovery Bay**	
Rocky Bay					
Big Wave Bay					

\*\* Non-gazetted beaches

## Beach monitoring frequency

Beach	Monitoring frequency per month	
	Bathing season *	Non-bathing season
Gazetted beaches open all year round**	at least 3 times	at least 3 times
Other gazetted beaches	at least 3 times	once
Non-gazetted beaches	at least 3 times	once

\* March to October

\*\* Clear Water Bay Second, Deep Water Bay, Golden and Silverstrand Beaches

## Overview of various stages of the Beach Monitoring Programme

[Image of overview of various stages of the Beach Monitoring Programme]

## Hong Kong's annual beach ranking system

Rank	<i>E. coli</i> counts per 100 mL*	Minor illness rate** (Cases per 1,000 swimmers)	WQO Compliance
Good	≤24	Undetectable	Compliant
Fair	25-180	≤10	
Poor	181-610	11-15	Non-compliant
Very Poor	>610	>15	

\* Geometric mean *E. coli* count calculated based on all data collected between March and October.

\*\* Skin and gastrointestinal illnesses



## Hong Kong's weekly beach grading system

<b>Grade</b>	<b>Beach water quality</b>	<b><i>E. coli</i> counts per 100 mL*</b>	<b>Minor illness rate ** (Cases per 1,000 swimmers)</b>
<b>1</b>	Good	$\leq 24$	Undetectable
<b>2</b>	Fair	25-180	$\leq 10$
<b>3</b>	Poor	181-610	11-15
<b>4</b>	Very Poor	$> 610$ or last reading $> 1,600$	$> 15$

\* Unless otherwise indicated, the *E. coli* count represents the geometric mean of the 5 most recent sampling occasions.

\*\* Skin and gastrointestinal illnesses

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**2016 Annual ranking and bathing season geometric mean *E. coli* levels of Hong Kong's gazetted beaches**

<b>Annual Ranking</b>	<b>Beach</b>	<b><i>E. coli</i> (counts/100ml)</b>
<b>Good</b>	Hap Mun Bay	4
	South Bay	5
	Chung Hom Kok	6
	Hung Shing Yeh	6
	Lo So Shing	6
	St. Stephen's	7
	Upper Cheung Sha	7
	Cheung Chau Tung Wan	9
	Tong Fuk	9
	Kiu Tsui	10
	Repulse Bay	10
	Turtle Cove	11
	Kwun Yam	12
	Trio	13
	Hairpin	17
	Middle Bay	20
	Stanley Main	23
	Deep Water Bay	24
	<b>Fair</b>	Shek O
Pui O		29
Clear Water Bay First		31
Clear Water Bay Second		32
Ma Wan Tung Wan		32
Cafeteria New		38
Lido		39
Gemini		40
Casam		42
Golden		45
Lower Cheung Sha		47
Rocky Bay		47
Kadoorie		48
Silverstrand		63
Hoi Mei Wan		65
Cafeteria Old		70
Anglers'		76
Approach		78
Big Wave Bay		78
Castle Peak		106
Silver Mine Bay	119	
Butterfly	131	
Ting Kau	140	

## Annual ranking of gazetted beaches at a glance in 2016

District	Beach	Annual Ranking
Southern	Big Wave Bay	Fair
	Chung Hom Kok	Good
	Deep Water Bay	Good
	Hairpin	Good
	Middle Bay	Good
	Repulse Bay	Good
	Rocky Bay	Fair
	Shek O	Fair
	South Bay	Good
	St. Stephen's	Good
	Stanley Main	Good
	Turtle Cove	Good
	Sai Kung	Clear Water Bay First
Clear Water Bay Second		Fair
Hap Mun Bay		Good
Kiu Tsui		Good
Silverstrand		Fair
Trio		Good
Tsuen Wan	Anglers'	Fair
	Approach	Fair
	Casam	Fair
	Gemini	Fair
	Hoi Mei Wan	Fair
	Lido	Fair
	Ting Kau	Fair
	Ma Wan Tung Wan	Fair
Tuen Mun	Butterfly	Fair
	Cafeteria New	Fair
	Cafeteria Old	Fair
	Castle Peak	Fair
	Golden	Fair
	Kadoorie	Fair
Islands	Cheung Chau Tung Wan	Good
	Hung Shing Yeh	Good
	Kwun Yam	Good
	Lo So Shing	Good
	Lower Cheung Sha	Fair
	Pui O	Fair
	Silver Mine Bay	Fair
	Tong Fuk	Good
	Upper Cheung Sha	Good

## Weekly beach grading summary of open gazetted beaches by district in 2016

District	Percentage of Weekly Gradings				Total no. of Grading Occasions
	Grade 1	Grade 2	Grade 3	Grade 4	
<b>Southern</b>	64%	33%	1%	2%	332
<b>Sai Kung</b>	54%	42%	2%	2%	211
<b>Tsuen Wan</b>	13%	78%	9%	1%	226
<b>Tuen Mun</b>	11%	81%	6%	1%	202
<b>Outlying Islands</b>	70%	24%	3%	2%	291

Figures may not add up to 100% due to roundings

## Annual ranking and weekly grading summary - Southern District beaches

Beach	Annual Ranking	Percentage of Weekly Gradings			
		Grade 1	Grade 2	Grade 3	Grade 4
<b>Big Wave Bay</b>	Fair	8 %	76 %	3 %	13 %
<b>Chung Hom Kok</b>	Good	97 %	3 %	0 %	0 %
<b>Deep Water Bay</b>	Good	56 %	35 %	6 %	3 %
<b>Hairpin *</b>	Good	63 %	34 %	0 %	3 %
<b>Middle Bay</b>	Good	50 %	47 %	0 %	3 %
<b>Repulse Bay</b>	Good	91 %	9 %	0 %	0 %
<b>Rocky Bay *</b>	Fair	19 %	75 %	3 %	3 %
<b>Shek O</b>	Fair	44 %	56 %	0 %	0 %
<b>South Bay</b>	Good	97 %	3 %	0 %	0 %
<b>St. Stephen's</b>	Good	88 %	13 %	0 %	0 %
<b>Stanley Main</b>	Good	58 %	42 %	0 %	0 %
<b>Turtle Cove</b>	Good	69 %	31 %	0 %	0 %

Note: Figures may not add up to 100% due to roundings

\* Beaches not open for swimming (no lifeguard service)

## Annual ranking and weekly grading summary - Sai Kung beaches

Beach	Annual Ranking	Percentage of Weekly Gradings			
		Grade 1	Grade 2	Grade 3	Grade 4
Clear Water Bay First	Fair	34 %	63 %	0 %	3 %
Clear Water Bay Second	Fair	42 %	47 %	8 %	3 %
Hap Mun Bay	Good	100 %	0 %	0 %	0 %
Kiu Tsui	Good	85 %	15 %	0 %	0 %
Silverstrand	Fair	0 %	89 %	3 %	8 %
Trio	Good	68 %	32 %	0 %	0 %

Note: Figures may not add up to 100% due to roundings

## Annual ranking and weekly grading summary - Tsuen Wan beaches

Beach	Annual Ranking	Percentage of Weekly Gradings			
		Grade 1	Grade 2	Grade 3	Grade 4
<b>Anglers'</b>	Fair	0 %	100 %	0 %	0 %
<b>Approach</b>	Fair	0 %	78 %	22 %	0 %
<b>Casam</b>	Fair	19 %	81 %	0 %	0 %
<b>Gemini *</b>	Fair	13 %	88 %	0 %	0 %
<b>Hoi Mei Wan</b>	Fair	9 %	91 %	0 %	0 %
<b>Lido</b>	Fair	22 %	78 %	0 %	0 %
<b>Ting Kau</b>	Fair	0 %	58 %	39 %	3 %
<b>Ma Wan Tung Wan</b>	Fair	39 %	61 %	0 %	0 %

Note: Figures may not add up to 100% due to roundings

\* Beaches not open for swimming (no lifeguard service)



### Annual ranking and weekly grading summary - Tuen Mun beaches

Beach	Annual Ranking	Percentage of Weekly Gradings			
		Grade 1	Grade 2	Grade 3	Grade 4
<b>Butterfly</b>	Fair	3 %	67 %	22 %	8 %
<b>Cafeteria New</b>	Fair	24 %	76 %	0 %	0 %
<b>Cafeteria Old</b>	Fair	6 %	94 %	0 %	0 %
<b>Castle Peak</b>	Fair	0 %	88 %	12 %	0 %
<b>Golden</b>	Fair	15 %	85 %	0 %	0 %
<b>Kadoorie</b>	Fair	21 %	79 %	0 %	0 %

Note: Figures may not add up to 100% due to roundings

## Annual ranking and weekly grading summary - Beaches on the Outlying Islands

Beach	Annual Ranking	Percentage of Weekly Gradings			
		Grade 1	Grade 2	Grade 3	Grade 4
<b>Cheung Chau Tung Wan</b>	Good	97 %	3 %	0 %	0 %
<b>Hung Shing Yeh</b>	Good	100 %	0 %	0 %	0 %
<b>Kwun Yam</b>	Good	94 %	6 %	0 %	0 %
<b>Lo So Shing</b>	Good	97 %	3 %	0 %	0 %
<b>Lower Cheung Sha</b>	Fair	24 %	65 %	6 %	6 %
<b>Pui O</b>	Fair	31 %	69 %	0 %	0 %
<b>Silver Mine Bay</b>	Fair	5 %	59 %	22 %	14 %
<b>Tong Fuk</b>	Good	97 %	3 %	0 %	0 %
<b>Upper Cheung Sha</b>	Good	100 %	0 %	0 %	0 %

Note: Figures may not add up to 100% due to roundings

## Annual beach rankings of gazetted beaches from 1986 to 2016

Year	Number of Beaches in Each Rank				Total
	Good	Fair	Poor	Very Poor	
1986	9	20	7	3	39
1987	5	21	9	5	40
1988	7	19	7	7	40
1989	13	18	7	2	40
1990	14	19	5	2	40
1991	17	14	7	2	40
1992	16	14	7	3	40
1993	15	12	10	3	40
1994	13	14	11	2	40
1995	14	10	13	4	41
1996	13	14	10	4	41
1997	10	16	12	3	41
1998	16	16	8	1	41
1999	22	13	6	0	41
2000	21	14	6	0	41
2001	21	13	5	2	41
2002	23	10	2	6	41
2003	23	11	1	6	41
2004	25	9	5	2	41
2005	23	11	1	6	41
2006	22	12	5	2	41
2007	25	9	7	0	41
2008	24	10	7	0	41
2009	23	15	3	0	41
2010	23	18	0	0	41
2011	31	10	0	0	41
2012	23	18	0	0	41
2013	24	17	0	0	41
2014	23	18	0	0	41
2015	25	16	0	0	41
2016	18	23	0	0	41

Note: Two beaches degazetted in 1995 were excluded from all the statistics above

## Comparison of annual beach ranking of gazetted beaches in 1986 and 2016

Year	WQO Compliant		WQO Non-compliant	
	Good	Fair	Poor	Very Poor
1986	23.1% (9)	51.3% (20)	17.9% (7)	7.7% (3)
2016	43.9% (18)	56.1% (23)	0% (0)	0% (0)

( ) No. of beaches

Note: Two beaches degazetted in 1995 were excluded from all the statistics above

**Annual geometric mean *E. coli* levels of gazetted beaches by district, 1997 - 2016**

<b>Year</b>	<b>Southern</b>	<b>Sai Kung</b>	<b>Tsuen Wan</b>	<b>Tuen Mun</b>	<b>Outlying Islands</b>
<b>1997</b>	55	26	562	326	24
<b>1998</b>	34	17	321	125	12
<b>1999</b>	16	9	231	59	7
<b>2000</b>	16	11	219	57	8
<b>2001</b>	18	13	321	101	12
<b>2002</b>	10	12	666	70	7
<b>2003</b>	11	14	566	85	8
<b>2004</b>	9	10	405	64	5
<b>2005</b>	14	14	576	77	8
<b>2006</b>	13	11	447	122	11
<b>2007</b>	9	8	294	77	9
<b>2008</b>	11	13	247	56	12
<b>2009</b>	11	13	163	43	10
<b>2010</b>	14	10	90	39	8
<b>2011</b>	7	5	25	34	7
<b>2012</b>	11	10	50	47	8
<b>2013</b>	12	15	85	54	11
<b>2014</b>	12	13	76	44	12
<b>2015</b>	14	8	70	45	10
<b>2016</b>	17	18	57	66	16

Note: Annual geometric mean *E. coli* levels calculated based on all the data collected between March and October

Annual geometric mean *E. coli* levels (1997 - 2016)

Beach	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
	<b>Southern District</b>																			
Big Wave Bay	179	114	77	98	106	23	33	26	101	50	17	31	46	149	17	31	21	40	21	78
Chung Hom Kok	22	40	14	8	15	13	14	9	13	10	9	13	14	9	5	5	8	13	13	6
Deep Water Bay	55	46	14	16	18	9	9	7	8	7	7	9	12	9	6	9	11	14	19	24
Hairpin	44	72	17	18	10	6	7	7	13#	11#	19#	10#	12#	33#	6#	9#	14#	12#	8#	17#
Middle Bay	40	16	11	11	8	9	14	12	20	18	9	11	12	12	6	15	14	13	13	20
Repulse Bay	23	11	8	9	13	9	12	4	8	12	7	14	11	7	6	7	10	11	14	10
Rocky Bay	399#	223#	72#	80#	118#	43#	28#	19#	30#	33#	17#	15#	13#	50#	23#	30#	22#	16#	35#	47#
Shek O	102	70	32	29	31	13	11	16	19	24	18	22	11	19	11	16	15	18	29	26
South Bay	17	6	4	7	5	5	11	9	7	7	5	5	4	4	4	5	4	5	9	5
St. Stephen's	40	26	11	6	7	5	9	4	12	11	6	9	6	4	4	4	10	5	6	7
Stanley Main	72	24	13	12	9	8	6	5	7	10	9	10	13	20	6	34	19	9	20	23
Turtle Cove	40	14	12	11	15	8	4	5	8	7	5	5	5	8	4	6	6	8	5	11
<b>Sai Kung District</b>																				
Clear Water Bay First	62	41	11	16	28	28	17	9	16	20	14	11	15	10	7	8	24	15	14	31
Clear Water Bay Second	66	44	12	26	22	14	21	10	19	13	9	19	27	13	5	18	15	18	17	32
Hap Mun Bay	3	2	2	2	1	2	4	3	4	4	3	5	3	3	2	2	7	4	2	4
Kiu Tsui	5	4	4	5	5	4	5	17	14	11	6	13	16	13	9	10	13	11	6	10
Silverstrand	148	99	32	61	100	133	97	74	67	30	33	35	51	28	18	30	39	40	18	63
Trio	30	21	17	10	12	6	10	2	6	5	2	12	5	6	2	9	8	10	4	13
<b>Tsuen Wan District</b>																				
Anglers'	691#	502#	442#	326#	621#	1169#	693#	619#	895#	772#	496#	510#	276#	134#	27#	69#	133	130	77	76
Approach	1009#	435#	387#	316#	411#	696#	762#	470#	663#	599#	352#	251#	208#	124#	59	83	106	121	143	78
Casam	609	239	231	209	233	741	702#	594#	716#	426#	305#	289#	144#	102#	21	50	71	63	52	42
Gemini	458	399	350	258	323	1155	875#	1102#	1042#	853#	566#	481#	410#	137#	19#	40#	135#	110#	56#	40#
Hoi Mei Wan	471	280	109	177	199	547	442#	287#	641#	308#	286#	271#	130#	87#	23	51	86	58	90	65
Lido	600	262	231	181	269	683	734#	523#	782#	459#	280#	296#	178#	87#	21	32	53	57	52	39
Ma Wan Tung Wan	110	92	51	39	133	201	159	101	132	171	78	53	60	17	10	24	41	31	20	32
Ting Kau	1583#	1045#	515#	593#	739#	742#	831#	412#	512#	469#	405#	258#	145#	141#	58#	88#	107#	89	151	140
<b>Tuen Mun District</b>																				
Butterfly	259	121	44	61	74	60	74	55	55	94	84	56	49	30	41	42	71	38	98	131
Cafeteria New	309	100	60	51	104	62	80	54	70	120	68	48	38	31	27	47	50	31	30	38
Cafeteria Old	435	138	58	57	125	74	76	61	81	150	67	45	46	34	29	48	39	45	41	70
Castle Peak	332#	199#	57#	58#	105#	58#	64#	80#	90	139	64	47	35	63	49	48	78	91	71	106
Golden Beach	352	98	44	50	87	66	84	46	62	117	87	63	42	37	26	62	45	39	31	45
Kadoorie	290	130	109	68	120	114	160	98	117	118	101	87	48	45	37	40	52	37	29	48
<b>Outlying Islands</b>																				
Cheung Chau Tung Wan	24	19	11	12	16	17	11	12	14	37	21	15	17	12	6	13	10	14	19	9
Hung Shing Yeh	5	3	3	5	6	2	5	4	4	4	6	4	6	4	3	4	4	5	4	6
Kwun Yam	32	21	6	10	11	9	7	5	10	13	9	10	9	8	5	5	9	8	12	12
Lo So Shing	3	2	4	2	5	2	3	2	3	4	3	5	7	3	3	4	5	5	4	6
Lower Cheung Sha	85	23	10	12	22	10	14	7	12	11	12	20	13	11	9	10	17	21	17	47
Pui O	36	16	10	10	17	10	15	9	10	16	30	24	12	14	13	22	51	60	24	29
Silver Mine Bay	481	123	39	50	67	42	50	14	34	52	22	43	45	31	28	38	39	51	59	119
Tong Fuk	14	10	4	5	6	4	3	4	5	5	4	10	5	5	4	4	7	4	4	9
Upper Cheung Sha	8	3	2	3	5	3	3	3	3	4	4	7	5	4	3	4	4	5	3	7

Note:

# Figure in red indicates that the beach was not open for swimming in that year

## 2016 Beach visitor number

Beach	Daily Average		Peak Day	Peak Month	Total
	Weekdays	Weekends & Public Holidays			
<b>Southern District</b>					
Big Wave Bay	257	1061	2200	23000	125730
Chung Hom Kok	193	629	1400	12530	81215
Deep Water Bay	873	4378	15000	110000	487350
Hairpin	137	265	500	7240	43640
Middle Bay	198	392	800	12030	63650
Repulse Bay	11523	14243	20000	395050	3035350
Rocky Bay	0	0	0	0	0
Shek O	2914	6107	24000	300600	963060
South Bay	223	517	2500	16440	77490
St. Stephen's	185	346	800	10400	57900
Stanley Main	653	2777	17600	68840	325650
Turtle Cove	57	476	1900	9280	46570
<b>Sai Kung District</b>					
Clear Water Bay First	160	612	1390	13500	74410
Clear Water Bay Second	2336	3635	20500	203600	673650
Hap Mun Bay	316	1319	4200	46300	155660
Kiu Tsui	236	796	1720	15840	101590
Silverstrand	158	968	5300	32430	101980
Trio	328	1036	3600	33760	135580
<b>Tsuen Wan District</b>					
Anglers'	143	575	1210	9830	68650
Approach	159	325	1010	9890	51900
Casam	65	211	400	4880	27290
Gemini	12	33	50	610	4480
Hoi Mei Wan	49	134	260	3140	18600
Lido	358	1043	9100	23230	141090
Ma Wan Tung Wan	543	2241	4320	48610	265410
Ting Kau	154	388	1100	10040	55940
<b>Tuen Mun District</b>					
Butterfly	768	1439	2150	35450	240560
Cafeteria New	903	1792	3600	66550	290620
Cafeteria Old	930	1261	1950	40000	253610
Castle Peak	420	1340	2000	23750	174570
Golden	1941	4438	7000	100300	670350
Kadoorie	640	1048	1850	33250	188645
<b>Outlying Islands</b>					
Cheung Chau Tung Wan	599	1742	3400	46140	235890
Hung Shing Yeh	692	1566	3350	48120	237600
Kwun Yam	151	566	1220	13330	69410
Lo So Shing	128	391	820	9480	51910
Lower Cheung Sha	351	1316	2940	31360	161300
Pui O	1252	2568	6000	92400	409420
Silver Mine Bay	771	1498	3250	44600	245610
Tong Fuk	352	621	2450	25710	107180
Upper Cheung Sha	517	747	1650	31200	144650

Note: Information provided by the Leisure and Cultural Services Department

**Physicochemical water quality data for gazetted beaches, 2016**

Beach Name	pH	Salinity(psu)	Turbidity(NTU)	Temperature(°C)	Dissolved Oxygen (mg/L)	(% Saturation)
<b>Southern District</b>						
Big Wave Bay Beach	8.31 ( 8.02 - 8.48 )	27.7 ( 6.3 - 32.6 )	3.19 ( 0.52 - 10.20 )	25.9 ( 16.2 - 31.4 )	7.0 ( 5.8 - 9.6 )	97 ( 82 - 120 )
Chung Hom Kok Beach	8.34 ( 8.01 - 9.01 )	28.9 ( 17.5 - 32.4 )	2.64 ( 1.21 - 5.39 )	25.8 ( 16.4 - 31.2 )	6.9 ( 5.3 - 10.0 )	98 ( 81 - 130 )
Deep Water Bay Beach	8.31 ( 7.87 - 8.93 )	27.7 ( 16.8 - 32.3 )	4.79 ( 1.26 - 17.80 )	25.9 ( 16.4 - 31.2 )	7.0 ( 5.3 - 10.0 )	99 ( 78 - 130 )
Hairpin Beach *	8.37 ( 8.15 - 8.80 )	28.8 ( 17.1 - 32.7 )	2.49 ( 0.50 - 11.00 )	26.4 ( 16.3 - 32.3 )	7.0 ( 6.0 - 8.3 )	99 ( 83 - 127 )
Middle Bay Beach	8.35 ( 8.08 - 9.01 )	28.9 ( 19.1 - 32.3 )	3.96 ( 1.65 - 11.10 )	25.6 ( 16.1 - 30.6 )	6.9 ( 5.6 - 10.0 )	98 ( 80 - 130 )
Repulse Bay Beach	8.34 ( 8.06 - 8.97 )	29.3 ( 18.8 - 32.3 )	3.30 ( 1.27 - 10.80 )	25.6 ( 16.2 - 30.7 )	6.9 ( 5.4 - 10.0 )	97 ( 76 - 130 )
Rocky Bay Beach *	8.26 ( 7.97 - 8.46 )	29.9 ( 24.3 - 32.7 )	2.85 ( 0.74 - 15.70 )	25.5 ( 16.2 - 29.4 )	6.8 ( 5.6 - 8.2 )	95 ( 66 - 113 )
Shek O Beach	8.34 ( 8.14 - 8.51 )	30.8 ( 26.0 - 32.9 )	3.32 ( 0.74 - 7.72 )	26.0 ( 16.4 - 30.3 )	6.8 ( 5.5 - 7.8 )	96 ( 83 - 116 )
South Bay Beach	8.34 ( 8.03 - 8.91 )	28.9 ( 19.6 - 32.4 )	2.77 ( 1.18 - 6.08 )	26.0 ( 16.0 - 30.9 )	6.9 ( 5.1 - 10.0 )	98 ( 72 - 130 )
St. Stephen's Beach	8.31 ( 8.04 - 8.97 )	29.0 ( 16.5 - 32.5 )	2.82 ( 0.86 - 7.07 )	25.9 ( 16.3 - 31.3 )	6.8 ( 5.6 - 9.6 )	98 ( 83 - 130 )
Stanley Main Beach	8.38 ( 8.19 - 8.82 )	29.0 ( 17.5 - 32.4 )	3.11 ( 0.63 - 17.30 )	26.3 ( 16.4 - 32.4 )	7.0 ( 5.7 - 8.3 )	98 ( 80 - 122 )
Turtle Cove Beach	8.36 ( 8.15 - 8.80 )	29.0 ( 17.6 - 32.6 )	4.59 ( 0.86 - 19.80 )	26.2 ( 16.3 - 32.2 )	7.0 ( 5.9 - 8.1 )	98 ( 82 - 110 )

**Sai Kung District**

Clear Water Bay First Beach	8.37 ( 8.11 - 8.69 )	28.8 ( 14.3 - 32.8 )	5.50 ( 1.19 - 32.80 )	26.3 ( 16.2 - 31.8 )	6.8 ( 5.6 - 8.4 )	97 ( 79 - 119 )
Clear Water Bay Second Beach	8.36 ( 8.14 - 8.65 )	29.9 ( 17.3 - 33.4 )	6.40 ( 2.14 - 24.20 )	26.1 ( 16.0 - 32.3 )	6.6 ( 5.3 - 7.8 )	95 ( 79 - 119 )
Hap Mun Bay Beach	8.36 ( 8.12 - 8.69 )	30.6 ( 26.4 - 33.1 )	2.57 ( 0.57 - 9.38 )	26.6 ( 16.3 - 32.2 )	6.6 ( 5.4 - 9.7 )	96 ( 82 - 119 )
Kiu Tsui Beach	8.34 ( 8.10 - 8.86 )	30.2 ( 25.5 - 33.0 )	2.07 ( 0.69 - 9.03 )	26.6 ( 16.2 - 32.1 )	6.9 ( 5.1 - 10.0 )	99 ( 76 - 130 )
Silverstrand Beach	8.36 ( 8.13 - 8.66 )	28.0 ( 21.4 - 32.1 )	4.34 ( 1.06 - 16.80 )	26.1 ( 15.7 - 32.0 )	6.5 ( 5.3 - 8.5 )	95 ( 78 - 125 )
Trio Beach	8.31 ( 7.96 - 8.89 )	28.9 ( 22.4 - 32.4 )	2.71 ( 1.00 - 13.10 )	26.9 ( 16.3 - 32.3 )	6.8 ( 5.6 - 10.0 )	98 ( 77 - 130 )

**Tsuen Wan District**

Anglers' Beach	8.17 ( 7.89 - 8.48 )	27.1 ( 16.6 - 32.4 )	3.92 ( 1.68 - 10.30 )	25.5 ( 16.7 - 29.9 )	6.6 ( 4.4 - 9.2 )	93 ( 65 - 115 )
Approach Beach	8.18 ( 7.95 - 8.50 )	25.7 ( 19.9 - 32.2 )	3.73 ( 0.84 - 16.30 )	25.8 ( 16.7 - 29.8 )	6.5 ( 4.3 - 8.5 )	92 ( 62 - 120 )
Casam Beach	8.19 ( 7.90 - 8.46 )	26.2 ( 21.0 - 32.3 )	3.01 ( 1.38 - 6.17 )	25.8 ( 16.7 - 29.6 )	6.8 ( 5.5 - 9.4 )	96 ( 80 - 129 )
Gemini Beaches *	8.17 ( 7.92 - 8.41 )	26.7 ( 16.0 - 32.3 )	3.38 ( 1.66 - 7.12 )	25.7 ( 16.6 - 29.9 )	6.6 ( 5.1 - 9.9 )	93 ( 73 - 121 )
Hoi Mei Wan Beach	8.17 ( 7.90 - 8.50 )	25.9 ( 19.1 - 32.3 )	3.64 ( 1.54 - 8.12 )	26.0 ( 16.8 - 30.0 )	6.7 ( 5.1 - 8.9 )	94 ( 74 - 129 )
Lido Beach	8.17 ( 7.98 - 8.45 )	26.3 ( 20.7 - 32.3 )	3.73 ( 1.56 - 12.60 )	25.8 ( 16.6 - 29.7 )	6.7 ( 5.0 - 9.1 )	94 ( 72 - 116 )
Ma Wan Tung Wan Beach	8.17 ( 7.88 - 8.41 )	27.5 ( 19.8 - 32.3 )	4.33 ( 1.50 - 8.47 )	25.5 ( 16.7 - 29.4 )	6.5 ( 4.6 - 9.5 )	92 ( 69 - 102 )
Ting Kau Beach	8.20 ( 7.95 - 8.50 )	25.1 ( 19.7 - 32.2 )	3.98 ( 1.36 - 16.40 )	25.9 ( 16.8 - 29.6 )	6.8 ( 5.6 - 9.2 )	95 ( 80 - 130 )

**Tuen Mun District**

Butterfly Beach	8.16 ( 7.96 - 8.53 )	21.9 ( 12.5 - 32.3 )	8.69 ( 2.32 - 32.80 )	26.5 ( 16.3 - 30.2 )	6.6 ( 4.8 - 8.9 )	93 ( 71 - 105 )
Cafeteria New Beach	8.18 ( 7.97 - 8.45 )	21.6 ( 11.8 - 32.3 )	8.85 ( 2.94 - 21.50 )	26.2 ( 16.8 - 30.0 )	6.6 ( 5.6 - 8.9 )	93 ( 79 - 103 )
Cafeteria Old Beach	8.22 ( 8.02 - 8.51 )	20.9 ( 11.0 - 32.3 )	9.10 ( 2.35 - 19.30 )	26.3 ( 16.7 - 30.9 )	6.6 ( 5.1 - 8.9 )	94 ( 74 - 104 )
Castle Peak Beach	8.19 ( 7.92 - 8.72 )	20.9 ( 9.8 - 32.2 )	7.27 ( 1.85 - 32.90 )	26.6 ( 16.9 - 31.0 )	6.9 ( 5.2 - 9.0 )	97 ( 73 - 128 )
Golden Beach	8.17 ( 7.94 - 8.51 )	21.8 ( 11.9 - 32.2 )	11.35 ( 3.05 - 53.10 )	26.0 ( 16.6 - 30.1 )	6.6 ( 3.2 - 9.5 )	94 ( 80 - 105 )
Kadoorie Beach	8.17 ( 7.93 - 8.54 )	21.4 ( 10.9 - 32.3 )	5.91 ( 2.28 - 13.70 )	26.3 ( 16.8 - 30.3 )	6.6 ( 5.0 - 9.2 )	94 ( 78 - 103 )



**Islands District**

Cheung Chau Tung Wan Beach	8.29 ( 8.02 - 8.65 )	27.0 ( 19.9 - 31.5 )	4.41 ( 1.35 - 24.60 )	25.8 ( 16.7 - 30.8 )	7.0 ( 5.5 - 9.5 )	97 ( 80 - 126 )
Hung Shing Yeh Beach	8.26 ( 7.91 - 8.56 )	27.9 ( 18.2 - 32.1 )	7.96 ( 1.38 - 48.30 )	26.0 ( 17.4 - 30.5 )	6.6 ( 5.7 - 8.3 )	96 ( 81 - 120 )
Kwun Yam Beach	8.28 ( 7.95 - 8.64 )	26.7 ( 20.8 - 30.8 )	3.17 ( 1.16 - 11.10 )	26.1 ( 16.9 - 31.3 )	6.9 ( 5.6 - 8.4 )	96 ( 81 - 122 )
Lo So Shing Beach	8.30 ( 8.06 - 8.68 )	28.1 ( 14.3 - 32.3 )	3.85 ( 1.33 - 19.20 )	26.3 ( 15.3 - 30.8 )	6.7 ( 5.8 - 8.8 )	96 ( 85 - 111 )
Lower Cheung Sha Beach	8.37 ( 7.93 - 8.73 )	25.9 ( 10.6 - 31.7 )	9.37 ( 2.75 - 32.90 )	27.0 ( 16.8 - 33.2 )	6.7 ( 5.4 - 7.5 )	95 ( 80 - 110 )
Pui O Beach	8.35 ( 8.10 - 8.62 )	26.4 ( 16.8 - 32.0 )	12.30 ( 4.01 - 44.20 )	27.5 ( 17.1 - 33.1 )	6.5 ( 5.6 - 7.6 )	94 ( 79 - 107 )
Silver Mine Bay Beach	8.21 ( 7.78 - 8.64 )	22.0 ( 10.4 - 31.9 )	10.36 ( 1.84 - 49.50 )	26.7 ( 16.1 - 32.1 )	6.9 ( 5.2 - 10.0 )	96 ( 68 - 129 )
Tong Fuk Beach	8.40 ( 8.08 - 8.73 )	27.1 ( 17.2 - 32.0 )	7.97 ( 2.23 - 19.90 )	26.6 ( 16.5 - 31.6 )	6.7 ( 6.2 - 7.9 )	96 ( 82 - 108 )
Upper Cheung Sha Beach	8.40 ( 8.11 - 8.76 )	27.1 ( 17.5 - 32.3 )	7.95 ( 1.69 - 21.00 )	26.6 ( 16.6 - 30.9 )	6.8 ( 6.0 - 8.4 )	95 ( 85 - 105 )

\*Beaches not open for swimming (no lifeguard service)

Note: Data presented are arithmetic means; figures in brackets are ranges.

Footnote:

1. Practical Salinity Unit
2. Nephelometric Turbidity Unit