### **EPD - Beach Water Quality**

# **Beach Water Quality in Hong Kong 2021**

**Our Mission:** 

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

[Photo: Charming beaches under clear sky]

### Introduction

Sea bathing at scenic beaches is one of the popular outdoor activities of Hong Kong residents and tourists. To safeguard public health, the Government is committed to maintain a clean and safe swimming environment for beachgoers.

Since the establishment of the Environmental Protection Department (EPD) in 1986, a comprehensive Beach Water Quality Monitoring Programme has been implemented. This report summarizes the beach monitoring data collected in 2021, corresponding grading and bacteriological Water Quality Objective (WQO) compliance rate for bathing waters.

[Photo: Public enjoying sea bathing on a sunny day]

The COVID-19 pandemic still prevailed in 2021. In spite of that, EPD had strived to continue the water quality monitoring work at all beaches in the territory. In the period, EPD staff conducted field visits to inspect the beach conditions and collect water samples for laboratory analysis of Escherichia coli (E. coli) level. Physicochemical water quality parameters including dissolved oxygen, pH, salinity, temperature and turbidity of beach water were also measured in-situ for reference purpose.

[Photo: Water sampling and field measurement at beaches]

[Photo: Analysis of water samples at EPD's environmental microbiology laboratory]

EPD has established a dual rating system for beach water quality based on E. coli level as an indicator to assess the annual ranking and weekly grading of the beaches. Each ranking or grading represents a defined risk level of contracting minor swimming-associated gastrointestinal and skin illnesses. The annual ranking reflects the overall water quality of the beach in the entire bathing season, while the weekly grading traces recent water quality changes. Under this system, beaches are categorised into "Good", "Fair", "Poor" and "Very Poor". Beaches with "Good" or "Fair" annual ranking meet the bacteriological WQO for bathing waters.

[Photo: Water quality information displayed at the gazetted beaches]

### **Annual Beach Ranking in 2021**

Upon the opening of Tai Po Lung Mei Beach to the public on 23 June 2021, the number of gazetted beaches in Hong Kong increased to a total of 42. All these 42 gazetted beaches complied with the bacteriological WQO in 2021, among which 30 beaches (or 71%), 6 more than in 2020, received a "Good" ranking and 12 (or 29%) received a "Fair" ranking. No beaches were in the "Poor" or "Very Poor" ranking in both years.

[Photo: Middle Bay Beach has maintained a "Good" annual ranking since 1998]

The overall beach water quality this year was satisfactory, with number of "Good" ranking beaches reaching close to the record high. The cumulative rainfall in the 2021 bathing season (2 220 mm) was on par with the 30-year climatological average in 1991-2020 (2 285 mm), while the months of March to May and August to September were drier than normal. Hence the water quality remained largely stable during these periods, and presented higher extent of fluctuation in the exceptionally humid October. At the same time, the number of bright sunshine hours during the 2021 bathing season was 8.4% higher than the 30-year climatological average, enhancing the natural recovery of water quality.

The 42 gazetted beaches are distributed in 6 districts, namely Tuen Mun, Tsuen Wan, Southern (Hong Kong Island South), Islands, Sai Kung and Tai Po.

Across the territory, Sai Kung District remained better in beach water quality in 2021 with all its 6 beaches receiving a "Good" annual ranking. All the 12 beaches in the Southern District and the 9 beaches in the Islands District maintained the same ranking as in last year, with each district having one beach with "Fair" ranking (Big Wave Bay Beach in Southern District and Silver Mine Bay Beach in Islands District), and the rest were all ranked as "Good".

Tuen Mun District made a record of having 4 beaches (Golden Beach, Cafeteria New Beach, Cafeteria Old Beach and Kadoorie Beach) ranked "Good" and 2 beaches (Castle Peak Beach and Butterfly Beach) ranked "Fair". Cafeteria Old Beach and Kadoorie Beach were ranked "Good" for the first time since the monitoring programme started in 1986.

### [Photo: The flat and broad Pui O Beach]

Located adjacent to Tuen Mun District, Tsuen Wan District had all its 8 beaches maintained a "Fair" ranking as in last year. Since the gradual re-opening of all Tsuen Wan beaches between 2011 and 2014 due to water quality improvement upon the completion of sewerage works in the beach hinterland and the commissioning of the disinfection facilities of the Harbour Area Treatment Scheme in March 2010, stable water quality suitable for bathing has been observed at these beaches.

Tai Po Lung Mei Beach is the only public bathing beach in Tai Po District. The beach ended its first bathing season with a "Good" annual ranking.

### [Photo: Tai Po Lung Mei Beach became a new leisure resort in the district]

In 2021, EPD continued to monitor 2 non-gazetted beaches, the popular Discovery Bay in Lantau Island and the sandy New Kiu Tsui adjacent to Kiu Tsui Beach in Sai Kung. Both beaches maintained a "Good" ranking as in last year.

### Weekly Beach Grading in 2021

On top of the annual ranking, EPD also issues weekly grading of gazetted beaches during their usual opening periods to keep beachgoers informed of more recent changes in beach water quality. These latest grading information is disseminated through different channels including press releases, EPD's beach thematic website, beach water quality hotline, GeoInfo Map of the GovHK website and noticeboards at the beaches. An overview of the weekly grading status of the beaches in 2021 is provided below.

The 6 beaches in the Sai Kung District, which all received "Good" annual ranking, also performed well in terms of their weekly grading, and on average attained a "Good" grading for 88% of time in this bathing season. There was only 1 occasion when Silverstrand Beach was graded "Very Poor" in early October, with the water quality recovering to normal level on the following day.

Beaches in the Southern District maintained a long period of good water quality. Among the 10 beaches in the district, Repulse Bay Beach, South Bay Beach, Chung Hom Kok Beach, St. Stephen's Beach, Turtle Cove Beach and Shek O Beach achieved a "Good" grading throughout the entire bathing season. Middle Bay Beach was graded as "Very Poor" once in late April and Big Wave Bay Beach once in early August, both occurrences were associated with rainfall.

### [Photo: The energetic Shek O Beach]

A majority of the beaches in the Islands District had excellent water quality. Among them, Hung Shing Yeh Beach, Lo So Shing Beach and Upper Cheung Sha Beach achieved a "Good" grading for 100% of the time in

this bathing season. Lower Cheung Sha Beach and Kwun Yam Beach were graded "Very Poor" once in June and July respectively after heavy rain, while Silver Mine Bay Beach received a "Very Poor" grading 3 times between late June and late August.

Apart from Butterfly Beach and Castle Peak Beach which were graded "Fair" for most of the time and occasionally "Very Poor" after heavy rain in the bathing season, the other 4 beaches in the Tuen Mun District had overall achieved a considerably better weekly grading status when compared to the past few years.

[Photo: Golden Beach is one of the most popular beaches for family activities]

Similar to last year, beaches in the Tsuen Wan District were graded "Fair" in most of the time in this bathing season. A certain degree of improvement could be seen at Approach Beach, Ting Kau Beach and Casam Beach, where "Good" grading was recorded during mid-late April with ample sunshine. Except Hoi Mei Wan Beach, all other open Tsuen Wan beaches were graded "Very Poor" for 1 to 2 times.

Tai Po Lung Mei Beach in the Tai Po District was generally graded "Good" and only temporarily changed to a "Fair" grading between late July and mid August due to heavy rain. The beach did not record any "Poor" or "Very Poor" grading in the entire 2021.

### Water Quality Trend

The satisfying beach water quality in Hong Kong today is the outcome of continuous efforts of the Government and stakeholders in the past two decades. Beaches' rate of compliance with the bacteriological WQO had once deteriorated from 74% in 1986 (29 of 39 beaches) to 63% (26 of 41 beaches) in 1997, and thereafter improved gradually to 100% in 2010. The status of full compliance has maintained for 12 consecutive years since then.

Year	WQO C	ompliant	WQO Non-compliant	
	Good	Fair	Poor	Very Poor
1986	23.1% (9)	51.3% (20)	17.9% (7)	7.7% (3)
1997	24.4% (10)	39.0% (16)	29.3% (12)	7.3% (3)
2021	71.4% (30)	28.6% (12)	-	-

() No. of beaches

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

In the 1980s, many beaches were closed (e.g. 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 associated with new town development. In view of the situation, the Government invested resources extensively to implement various pollution abatement measures, including enforcement of environmental legislation (e.g. Water Pollution Control Ordinance and Livestock Waste Control Scheme), extension of sewerage network, provision of new sewage treatment facilities and upgrade of existing facilities. In particular the Harbour Area Treatment Scheme, a core infrastructure project, has brought marked improvement in beach water quality. The major water quality improvement measures implemented in the past are summarized in the following table.

Major improvement measures for the beaches since the implementation of beach water quality monitoring programme in					
1986					
1986 - 1990	Beaches with Water				
1960 - 1990	Quality Improvement				
Implementation of the Livestock Waste Control Scheme under the Waste Disposal (Livestock Waste)	Most beaches, particularly Silver Mine				
Regulation.	Bay Beach				
Declaration of the Southern Water Control Zone (WCZ) under the Water Pollution Control Ordinance	Southern beaches				
(WPCO) for legislative enforcement.	Southern beaches				
Interception and diversion of polluted storm drains at beaches in Southern District.	Southern beaches				
1991- 1995					
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
1996 - 2000	
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
2001 - 2005	
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
2006 - 2021	
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 scale commissioning of all facilities of the Harbour Area Treatment Scheme (HATS) Stage 2A.	Beaches along the Tsuen Wan coast

All gazetted beaches in Hong Kong have consistently complied with the required bacteriological water quality standard established based on swimming-associated health risk. EPD will continue to closely monitor the beach water quality to support water quality management policy, and to provide latest water quality data for beach users' reference.

### Rate of compliance with bacteriological WQO at gazetted beaches during 1997 - 2021

[Figure: Compliance rate with bacteriological WQO at gazetted beaches during 1997 - 2021]

Appendix D of this report provides graphs of water quality trend of all gazetted beaches since the monitoring programme started. The public can also visit the beach water quality thematic website (https://www.epd.gov.hk/epd/beach) to obtain more details of the beach monitoring programme, as well as annual beach water quality reports and data published since 2000.

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

\*\* Non-gazetted beaches

# **Beach monitoring frequency**

Beach	Monitoring frequency per month			
Deach	<b>Bathing season</b> *	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		

### **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	Compliant
Poor	181-610	11-15	Neg compliant
Very Poor	>610	>15	Non-compliant

\* 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

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

### The 2021 Findings

Annual ranking and bathing season geometric mean of E. coli levels of Hong Kong's gazetted beaches, 2021

Annual ranking of gazetted beaches at a glance, 2021

Weekly beach grading summary of open gazetted beaches by district, 2021

Southern District beaches

Sai Kung District beaches

Tsuen Wan District beaches

Tuen Mun District beaches

Islands District beaches

Tai Po District beaches

# Water Quality Trend

Annual ranking of gazetted beaches, 1986 - 2021

Comparison of annual beach ranking of gazetted beaches in 1986 and 2021

Annual geometric mean of E. coli levels of gazetted beaches by district, 1997 - 2021

### Appendices

Appendix A - Annual geometric mean *E. coli* levels (1997 - 2021)

Appendix B - 2021 Beach visitor number

Appendix C - Physicochemical water quality data for gazetted beaches, 2021

Appendix D - Long-term trend of beach water quality (1986 - 2021)\*

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Annual Ranking	Beach	E. coli (counts/100ml)
	Lo So Shing	2
	Hap Mun Bay	3
	Hung Shing Yeh	3
	St. Stephen's	3
	South Bay	4
	Trio	4
	Upper Cheung Sha	4
	Chung Hom Kok	5
	Repulse Bay	5
	Tong Fuk	5
	Hairpin	6
	Turtle Cove	6
	Kiu Tsui	7
	Clear Water Bay First	8
	Shek O	8
Good	Clear Water Bay Second	9
	Stanley Main	9
	Cheung Chau Tung Wan	10
	Tai Po Lung Mei Beach	12
	Deep Water Bay	13
	Kwun Yam	15
	Middle Bay	16
	Cafeteria New	17
	Silverstrand	18
	Golden	19
	Kadoorie	19
	Lower Cheung Sha	20
	Pui O	22
	Cafeteria Old	23
	Rocky Bay	24
	Big Wave Bay	28
	Silver Mine Bay	56
	Butterfly	57
	Approach	71
	Casam	74
	Hoi Mei Wan	76
Fair	Ting Kau	85
	Ma Wan Tung Wan	93
	Lido	98
	Castle Peak	103
	Gemini	127
	Anglers'	135

2021 Annual ranking and bathing season geometric mean *E. coli* levels of Hong Kong's gazatted beaches

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

District	Beach	Annual Ranking
	<b>Big Wave Bay</b>	Fair
	Chung Hom Kok	Good
	Deep Water Bay	Good
	Hairpin*	Good
	Middle Bay	Good
Southern	Repulse Bay	Good
Southern	Rocky Bay*	Good
	Shek O	Good
	South Bay	Good
	St. Stephen's	Good
	Stanley Main	Good
	Deep Water BayHairpin*Middle BayRepulse BayRocky Bay*Shek OSouth BaySt. Stephen'sStanley MainTurtle CoveClear Water Bay FirstClear Water Bay SecondHap Mun BayKiu TsuiSilverstrandTrioTai Po Lung MeiAnglers'ApproachCasamGemini*Hoi Mei WanLidoTing KauMa Wan Tung WanButterflyCafeteria NewCafeteria OldCastle PeakGoldenKadoorieCheung Chau Tung WanHung Shing YehKwun YamLo So Shing	Good
	Clear Water Bay First	Good
	<b>Clear Water Bay Second</b>	Good
Sai Kung	Big Wave BayChung Hom KokDeep Water BayHairpin*Middle BayRepulse BayRocky Bay*Shek OSouth BaySt. Stephen'sStanley MainTurtle CoveClear Water Bay FirstClear Water Bay SecondHap Mun BayKiu TsuiSilverstrandTrioTai Po Lung MeiApproachCasamGemini*Hoi Mei WanLidoTing KauMa Wan Tung WanButterflyCafeteria NewCafeteria New </td <td>Good</td>	Good
Sai Kung		Good
	Silverstrand	Good
	Trio	Good
Tai Po	Tai Po Lung Mei	Good
	Anglers'	Fair
	Approach	Fair
		Fair
Tsuen Wan		Fair
i such vv un		Fair
		Good
Tuen Mun		Good
		Fair
		Good
<b>.</b>	¥	Good
Islands		Good
		Good
		Fair
		Good
	Upper Cheung Sha	Good

# Annual ranking of gazetted beaches at a glance in 2021

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

Weekly beach grading summary of open gazetted beaches by district
in 2021

	Perc	centage of <b>V</b>	eekly Grad	lings	Total no. of
District	Grade 1	Grade 2	Grade 3	Grade 4	Grading Occasions
Southern	85.5%	13.3%	0.6%	0.6%	338
Sai Kung	87.3%	12.2%	0.0%	0.5%	205
Tai Po	85.3%	14.7%	0.0%	0.0%	34
Tsuen Wan	9.8%	76.0%	11.0%	3.3%	246
Tuen Mun	54.2%	40.7%	2.3%	2.8%	216
Islands	77.5%	18.2%	2.6%	1.6%	307

		Percentage of Weekly Gradings				
Beach	Annual Ranking	Grade 1	Grade 2	Grade 3	Grade 4	
Big Wave Bay	Fair	47 %	44 %	6 %	3 %	
Chung Hom Kok	Good	100 %	0 %	0 %	0 %	
Deep Water Bay	Good	65 %	35 %	0 %	0 %	
Hairpin *	Good	100 %	0 %	0 %	0 %	
Middle Bay	Good	63 %	34 %	0 %	3 %	
Repulse Bay	Good	100 %	0 %	0 %	0 %	
Rocky Bay *	Good	39 %	58 %	0 %	3 %	
Shek O	Good	100 %	0 %	0 %	0 %	
South Bay	Good	100 %	0 %	0 %	0 %	
St. Stephen's	Good	100 %	0 %	0 %	0 %	
Stanley Main	Good	82 %	18 %	0 %	0 %	
Turtle Cove	Good	100 %	0 %	0 %	0 %	

# Annual ranking and weekly grading summary - Southern District beaches

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

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

Deed		Percentage of Weekly Gradings							
Beach	Annual Ranking	Grade 1	Grade 2	Grade 3	Grade 4				
Clear Water Bay First	Good	91 %	9 %	0 %	0 %				
Clear Water Bay Second	Good	79 %	21 %	0 %	0 %				
Hap Mun Bay	Good	100 %	0 %	0 %	0 %				
Kiu Tsui	Good	97 %	3 %	0 %	0 %				
Silverstrand	Good	60 %	37 %	0 %	3 %				
Trio	Good	97 %	3 %	0 %	0 %				

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

			Percentage of Weekly Gradings							
Beach	Annual Ranking	Grade 1	Grade 2	Grade 3	Grade 4					
Anglers'	Fair	6 %	60 %	29 %	6 %					
Approach	Fair	11 %	83 %	3 %	3 %					
Casam	Fair	17 %	74 %	6 %	3 %					
Gemini *	Fair	6 %	50 %	41 %	3 %					
Hoi Mei Wan	Fair	12 %	82 %	6 %	0 %					
Lido	Fair	8 %	75 %	11 %	6 %					
Ting Kau	Fair	14 %	63 %	20 %	3 %					
Ma Wan Tung Wan	Fair	0 %	94 %	3 %	3 %					

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

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

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

Beach		Percentage of Weekly Gradings							
Deach	Annual Ranking	Grade 1	Grade 2	Grade 3	Grade 4				
Butterfly	Fair	21 %	66 %	5 %	8 %				
Cafeteria New	Good	83 %	17 %	0 %	0 %				
Cafeteria Old	Good	69 %	31 %	0 %	0 %				
Castle Peak	Fair	0 %	86 %	8 %	5 %				
Golden	Good	83 %	14 %	0 %	3 %				
Kadoorie	Good	74 %	26 %	0 %	0 %				

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

		Percentage of Weekly Gradings							
Beach	Annual Ranking	Grade 1	Grade 2	Grade 3	Grade 4				
Cheung Chau Tung Wan	Good	91 %	9 %	0 %	0 %				
Hung Shing Yeh	Good	100 %	0 %	0 %	0 %				
Kwun Yam	Good	74 %	24 %	0 %	3 %				
Lo So Shing	Good	100 %	0 %	0 %	0 %				
Lower Cheung Sha	Good	60 %	37 %	0 %	3 %				
Pui O	Good	50 %	50 %	0 %	0 %				
Silver Mine Bay	Fair	41 %	30 %	22 %	8 %				
Tong Fuk	Good	88 %	12 %	0 %	0 %				
Upper Cheung Sha	Good	100 %	0 %	0 %	0 %				

# Annual ranking and weekly grading summary - Islands District beaches

# Annual ranking and weekly grading summary - Tai Po District beaches

Beach		Percentage of Weekly Gradings						
	Annual Ranking	Grade 1	Grade 2	Grade 3	Grade 4			
Tai Po Lung Mei	Good	72 %	28 %	0 %	0 %			

Year		nber of Beac	hes in Each F		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
2017	23	18	0	0	41
2018	26	15	0	0	41
2010	21	20	0	0	41
2019	24	17	0	0	41
2021	30	12	0	0	42

### Annual beach rankings of gazetted beaches from 1986 to 2021

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

# Comparison of annual beach ranking of gazetted beaches in 1986 and 2021

Veen	WQO C	ompliant	WQO Non-compliant				
Year	Good	Fair	Poor	Very Poor			
1986	23.1% (9)	51.3% (20)	17.9% (7)	7.7% (3)			
2021	71.4% (30)	28.6% (12)	0% (0)	0% (0)			

() No. of beaches

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

Year	Southern	Sai Kung	Tsuen Wan	Tuen Mun	Islands
1997	55	26	562	326	24
1998	34	17	321	125	12
1999	16	9	231	59	7
2000	16	11	219	57	8
2001	18	13	321	101	12
2002	10	12	666	70	7
2003	11	14	566	85	8
2004	9	10	405	64	5
2005	14	14	576	77	8
2006	13	11	447	122	11
2007	9	8	294	77	9
2008	11	13	247	56	12
2009	11	13	163	43	10
2010	14	10	90	39	8
2011	7	5	25	34	7
2012	11	10	50	47	8
2013	12	15	85	54	11
2014	12	13	76	44	12
2015	14	8	70	45	10
2016	17	18	57	66	16
2017	9	11	51	46	12
2018	8	10	97	31	8
2019	12	12	81	63	11
2020	8	11	93	65	8
2021	8	7	92	31	9

Annual geometric mean *E. coli* levels of gazetted beaches by district, 1997 - 2021

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 - 2021)

Beach																									
Deach	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Southern District																									
Big Wave Bay	179	114	77	98	106	23	33	26	101	50	17	31	46	149	17	31	21	40	21	78	36	34	103	37	28
Chung Hom Kok	22	40	14	8	15	13	14	9	13	10	9	13	14	9	5	5	8	13	13	6	6	4	6	9	5
Deep Water Bay	55	46	14	16	18	9	9	7	8	7	7	9	12	9	6	9	11	14	19	24	14	11	19	13	13
Hairpin	44	72	17	18	10	6	7	7	13*	11*	19*	10*	12*	33*	6*	9*	14*	12*	8*	17*	5*	8*	7*	5*	6*
Middle Bay	40	16	11	11	8	9	14	12	20	18	9	11	12	12	6	15	14	13	13	20	14	9	18	11	16
Repulse Bay	23	11	8	9	13	9	12	4	8	12	7	14	11	7	6	7	10	11	14	10	5	4	4	5	5
Rocky Bay	399*	223*	72*	80*	118*	43*	28*	19*	30*	33*	17*	15*	13*	50*	23*	30*	22*	16*	35*	47*	18*	29*	47*	10*	24*
Shek O	102	70	32	29	31	13	11	16	19	24	18	22	11	19	11	16	15	18	29	26	16	19	25	7	8
South Bay	17	6	4	7	5	5	11	9	7	7	5	5	4	4	4	5	4	5	9	5	3	2	4	3	4
St. Stephen's	40	26	11	6	7	5	9	4	12	11	6	9	6	4	4	4	10	5	6	7	4	4	5	6	3
Stanley Main	72	24	13	12	9	8	6	5	7	10	9	10	13	20	6	34	19	9	20	23	8	11	7	6	9
Turtle Cove	40	14	12	11	15	8	4	5	8	7	5	5	5	8	4	6	6	8	5	11	5	3	9	8	6
Sai Kung District																									
Clear Water Bay First	62	41	11	16	28	28	17	9	16	20	14	11	15	10	7	8	24	15	14	31	20	19	23	19	8
Clear Water Bay Second	66	44	12	26	22	14	21	10	19	13	9	19	27	13	5	18	15	18	17	32	16	13	17	14	9
Hap Mun Bay	3	2	2	2	1	2	4	3	4	4	3	5	3	3	2	2	7	4	2	4	3	3	2	3	3
Kiu Tsui	5	4	4	5	5	4	5	17	14	11	6	13	16	13	9	10	13	11	6	10	5	8	8	11	7
Silverstrand	148	99	32	61	100	133	97	74	67	30	33	35	51	28	18	30	39	40	18	63	56	24	40	28	18
Trio	30	21	17	10	12	6	10	2	6	5	2	12	5	6	2	9	8	10	4	13	7	7	9	6	4
Tsuen Wan District			2,			ţ		_			_		-		_		÷						-	÷	
Anglers'	691*	502*	442*	326*	621*	1169*	693*	619*	895*	772*	496*	510*	276*	134*	27*	69*	133	130	77	76	45	143	88	105	135
Approach	1009*	435*	387*	316*	411*	696*	762*	470*	663*	599*	352*	251*	208*	124*	59	83	106	121	143	78	114	92	97	133	71
Casam	609	239	231	209	233	741	702*	594*	716*	426*	305*	289*	144*	102*	21	50	71	63	52	42	43	94	79	84	74
Gemini	458	399	350	258	323	1155	875*	1102*	1042*	853*	566*	481*	410*	137*	19*	40*	135*	110*	56*	40*	39*	120*	79*	101*	127*
Hoi Mei Wan	471	280	109	177	199	547	442*	287*	641*	308*	286*	271*	130*	87*	23	51	86	58	90	65	63	92	112	84	76
Lido	600	262	231	181	269	683	734*	523*	782*	459*	280*	296*	178*	87*	21	32	53	57	52	39	34	76	65	66	98
Ma Wan Tung Wan	110	92	51	39	133	201	159	101	132	171	78	53	60	17	10	24	41	31	20	32	29	74	46	84	93
Ting Kau	1583*	1045*	515*	593*	739*	742*	831*	412*	512*	469*	405*	258*	145*	141*	58*	88*	107*	89	151	140	75	101	102	93	85
Tuen Mun District	1000	1010	010	575	137	/ 12	001	112	012	.07	100	200	110		20	00	107	0)	101	110	,0	101	102	,,	
Butterfly	259	121	44	61	74	60	74	55	55	94	84	56	49	30	41	42	71	38	98	131	81	39	91	129	57
Cafeteria New	309	100	60	51	104	62	80	54	70	120	68	48	38	31	27	47	50	31	30	38	31	18	40	37	17
Cafeteria Old	435	138	58	57	125	74	76	61	81	150	67	45	46	34	29	48	39	45	41	70	50	30	64	53	23
Castle Peak	332*	199*	57*	58*	105*	58*	64*	80*	90	139	64	47	35	63	49	48	78	91	71	106	65	70	128	112	103
Golden Beach	352	98	44	50	87	66	84	46	62	117	87	63	42	37	26	62	45	39	31	45	37	22	41	45	105
Kadoorie	290	130	109	68	120	114	160	98	117	117	101	87	48	45	37	40	52	37	29	48	31	22	52	55	19
Islands District	270	150	107	00	120	114	100	78	11/	110	101	07	40	ч.)	51	10	52	51	2)	40	51	20	52	55	
Cheung Chau Tung Wan	24	19	11	12	16	17	11	12	14	37	21	15	17	12	6	13	10	14	19	9	18	9	8	11	10
Hung Shing Yeh	5	3	3	5	6	2	5	4	4	4	6	4	6	4	3	4	4	5	4	6	5	4	4	5	3
Kwun Yam	32	21	6	10	11	9	7	5	10	13	9	10	9	8	5	5	9	8	12	12	9	8	7	8	15
Lo So Shing	32	21	4	2	5	2	3	2	3	4	3	5	7	3	3	4	5	5	4	6	9	8	3	8	2
Lo so shing Lower Cheung Sha	85	23	10	12	22	10	14	7	12	4	12	20	13	11	9	4	17	21	4	47	19	9	25	4	20
Pui O	36	16	10	12	17	10	14	9	12	16	30	20	13	11	13	22	51	60	24	29	34	19	23	21	20
Silver Mine Bay	481	123	39	50	67	42	50	14	34	52	22	43	45	31	28	38	39	51	59	119	34 141*	36	106	37	56
Tong Fuk	481	125	39	50	6/	42	30	4	5	52	4	43	45	5	28 4	38	<u> </u>	4	59 4	9	3	4	5	4	5
Upper Cheung Sha	8	3	4	3	5	4	3	4	3	3	4	7	5	3	4	4	4	4	4	9	3	4	5	4	4
	0	3	Z	3	3	3	3	3	3	4	4	/	3	4	3	4	4	3	3	/	3	4	/	4	4
Tai Po District																				r r					12
Tai Po Lung Mei																									12
Note:																									

Note:

\* Beach not open for swimming that year

### 2021 Beach visitor number

	Daily A	verage			
Beach	Weekdays	Weekends & Public Holidays	Peak Day	Peak Month	Total
Southern District		1 wone 11011ww.yo			
Big Wave Bay	245	832	2 000	21 110	92 830
Chung Hom Kok	39	265	800	5 230	24 030
Deep Water Bay	1 037	4 381	12 000	90 700	452 800
Hairpin	102	200	500	4 800	28 450
Middle Bay	97	197	400	4 750	27 450
Repulse Bay	994	6 678	13 100	116 330	607 680
Rocky Bay					
Shek O	358	1 813	7 000	56 300	177 440
South Bay	73	253	500	5 550	28 000
St. Stephen's	46	137	400	3 500	16 060
Stanley Main	762	2 092	5 000	54 000	253 871
Turtle Cove	106	202	480	5 270	29 060
Sai Kung District					
Clear Water Bay First	127	458	880	9 620	50 000
Clear Water Bay Second	1 072	1 891	4 600	53 500	283 500
Hap Mun Bay	379	1 317	3 700	33 740	145 695
Kiu Tsui	133	301	600	6 510	39 830
Silverstrand	363	1 133	2 600	26 570	130 485
Trio	458	1 080	2 480	32 830	140 160
Tsuen Wan District	•				
Anglers'	124	453	870	9 930	49 240
Approach	77	140	270	4 550	20 680
Casam	62	87	160	2 760	14 860
Gemini	24	74	250	1 380	8 540
Hoi Mei Wan	36	303	830	5 000	26 320
Lido	426	799	1 830	26 670	115 950
Ma Wan Tung Wan	241	967	2 670	18 960	101 620
Ting Kau	107	441	710	7 980	45 935
Tuen Mun District					
Butterfly	546	910	1 550	28 150	140 700
Cafeteria New	911	1 744	5 300	61 000	250 550
Cafeteria Old	555	1 090	1 590	24 820	154 540
Castle Peak	348	790	1 200	18 000	104 300
Golden	814	2 813	8 000	67 800	311 720
Kadoorie	831	803	1 400	32 040	173 370
Islands District					
Cheung Chau Tung Wan	474	1 505	2 520	29 150	172 175
Hung Shing Yeh	611	1 020	2 010	26 280	157 530
Kwun Yam	151	575	1 600	14 250	61 440
Lo So Shing	148	247	430	6 650	38 230
Lower Cheung Sha	405	1 430	2 250	33 000	157 250
Pui O	664	1 299	2 800	45 010	184 530
Silver Mine Bay	466	1 741	5 650	39 640	187 480
Tong Fuk	369	730	1 510	26 690	103 110
Upper Cheung Sha	398	533	860	18 120	93 400
Tai Po District					
Tai Po Lung Mei	664	2 592	10 100	58 077	164 697

Note: Information provided by the Leisure and Cultural Services Department

#### Physicochemical water quality data for gazetted beaches, 2021

r nysicochemical water quanty	uata ioi gazetteu be	···· ··· ·				
Beach Name	рН	Salinity (psu) <sup>1</sup>	Turbidity (NTU) <sup>2</sup>	Temperature (°C)	Dissolve (mg/L)	d Oxygen (% Saturation)
Southern District						
Big Wave Bay Beach	8.27 (8.01 - 8.51)	30.0 (12.7 - 33.6)	3.39 (1.02 - 14.20)	26.6 (19.5 - 30.9)	6.7 (5.2 - 8.8)	95 (76 - 129)
Chung Hom Kok Beach	8.26	30.7 (25.2 - 33.6)	3.78 (1.27 - 8.73)	27.3 (20.3 - 31.1)	6.3 (4.7 - 7.9)	90
Deep Water Bay Beach	(8.05 - 8.49) 8.22	30.1	6.45	27.6	6.4	( 69 - 110 ) 91
Hairpin Beach *	(8.01 - 8.53) 8.31	(24.5 - 33.7) 31.0	(1.85 - 18.10) 2.39	(20.3 - 31.8) 27.5	(4.5 - 7.7) 6.9	( <u>69 - 120</u> ) 99
	(8.06 - 8.53) 8.27	(24.9 - 33.7) 30.4	(0.61 - 11.90) 4.26	(20.1 - 32.0) 26.9	(4.9 - 8.9) 6.5	(77 - 130) 93
Middle Bay Beach	(8.04 - 8.54) 8.27	(24.5 - 33.7) 30.9	(1.33 - 8.76) 4.24	(20.0 - 30.4) 26.9	(4.5 - 8.5) 6.5	(66 - 127) 93
Repulse Bay Beach	(8.06 - 8.53)	(24.8 - 33.7)	(1.49 - 7.37)	(20.0 - 30.1)	(4.8 - 7.9)	(69 - 114)
Rocky Bay Beach *	8.23 ( 8.06 - 8.48 )	31.7 (24.6 - 33.7)	3.15 (0.97 - 13.80)	26.2 (19.7 - 30.7)	6.5 (4.5 - 9.1)	92 (66 - 128)
Shek O Beach	8.28 ( 8.08 - 8.50 )	31.7 (26.5 - 33.8)	3.78 (1.03 - 20.70)	26.6 (19.8 - 30.7)	6.4 (4.7 - 7.9)	91 (71 - 119)
South Bay Beach	8.26	30.8	2.71	27.1	6.3	91
St. Stephen's Beach	(8.03 - 8.54) 8.25	(24.6 - 33.7) 30.6	(0.85 - 9.04) 2.95	(20.0 - 30.5) 27.3	(4.3 - 7.7) 6.3	(63 - 117) 90
Stanley Main Beach	(8.06 - 8.48) 8.31	(24.4 - 33.8) 31.0	(1.26 - 5.94) 3.07	(20.4 - 30.8) 27.6	(4.4 - 8.1) 6.9	(65 - 117) 100
	(8.07 - 8.56) 8.29	(24.2 - 33.8) 30.4	(0.96 - 13.20) 5.19	(20.3 - 32.8) 27.4	(5.3 - 9.6) 6.6	(75 - 130) 95
Turtle Cove Beach	(8.06 - 8.50)	(24.6 - 33.7)	(1.37 - 22.30)	(20.1 - 32.5)	(5.2 - 7.7)	(79 - 122)
Sai Kung District					[	
Clear Water Bay First Beach	8.23 ( 8.06 - 8.43 )	31.1 (17.2 - 33.6)	4.33 (0.88 - 14.30)	27.4 (19.6 - 32.0)	6.4 (5.3 - 8.2)	93 (76 - 128)
Clear Water Bay Second Beach	8.22 (8.10 - 8.41)	31.7 (15.8 - 34.0)	5.58 (1.45 - 17.10)	27.1 (19.6 - 31.6)	6.3 (4.8 - 9.5)	91 (75 - 127)
Hap Mun Bay Beach	8.25	32.0	2.56	27.7	6.5	94
Kiu Tsui Beach	(8.12 - 8.39) 8.24	(25.4 - 33.6) 31.5	(0.36 - 7.66) 2.45	(20.0 - 32.0) 27.9	(5.1 - 8.1) 6.5	(71 - 116) 96
	(8.03 - 8.42) 8.22	(21.1 - 33.5) 30.4	(0.49 - 11.40) 4.31	(19.9 - 32.2) 27.3	(5.0 - 8.0) 6.4	(75 - 120) 92
Silverstrand Beach	(7.89 - 8.37) 8.21	(21.8 - 33.1) 30.8	(0.91 - 14.60) 2.74	(19.5 - 31.7) 28.0	(4.6 - 8.4) 6.4	(69 - 125) 93
Trio Beach	(8.10 - 8.37)	(9.5 - 33.4)	(0.58 - 11.40)	(20.0 - 32.6)	(4.6 - 7.9)	(69 - 119)
Tsuen Wan District						
Anglers' Beach	8.16 (7.97 - 8.57)	29.1 (20.3 - 32.9)	4.03 (1.48 - 8.52)	26.8 (20.8 - 30.2)	5.9 (4.3 - 8.3)	84 (64 - 120)
Approach Beach	8.18 (7.97 - 8.53)	27.8 (21.5 - 32.2)	4.78 (1.28 - 16.10)	26.9 (20.3 - 30.0)	6.3 (4.1 - 8.6)	89 (63 - 116)
Casam Beach	8.18	28.3	3.78	27.1	6.2	89
Gemini Beaches *	(7.96 - 8.53) 8.14	(21.8 - 32.6) 29.1	(1.75 - 9.25) 3.51	(20.6 - 30.5) 26.7	(5.0-7.6) 5.8	(72 - 109) 81
	(7.92 - 8.55) 8.15	(20.3 - 33.3) 28.1	(1.65 - 6.12) 3.04	(20.8 - 30.4) 27.1	(4.1 - 7.9)	(62 - 113) 84
Hoi Mei Wan Beach	(7.89 - 8.48)	(21.4 - 32.7)	(1.12 - 5.92)	(20.6 - 30.7) 26.9	(4.1 - 8.9)	(60 - 129) 85
Lido Beach	8.16 (7.87 - 8.48)	28.5 (21.7 - 33.3)	4.32 (1.55 - 7.75)	(20.6 - 30.2)	(4.3 - 7.4)	(63 - 101)
Ma Wan Tung Wan Beach	8.14 (7.99 - 8.42)	29.2 (23.9 - 32.6)	5.88 (1.60 - 12.40)	26.9 (19.8 - 30.2)	6.1 (4.6 - 7.9)	87 (68 - 107)
Ting Kau Beach	8.17 (7.99 - 8.49)	27.6 (21.3 - 31.6)	4.11 (0.99 - 15.10)	27.2 (20.4 - 30.4)	6.1 (4.1 - 7.6)	86 (62 - 110)
Tuon Mun District	(1.55 0.15)	(21.5 51.6)	(0.99 10.10)	(20.1 50.1)	(1.1 7.0)	(02 110)
Tuen Mun District Butterfly Beach	8.17	25.8	10.01	28.1	6.1	88
Cafeteria New Beach	(7.97 - 8.67) 8.19	(17.4 - 32.2) 25.9	(2.04 - 51.60) 7.1	(20.7 - 31.5) 27.6	(4.2 - 8.9) 6	(60 - 130) 85
	(8.03 - 8.56) 8.17	(15.0 - 32.3) 25.7	(2.67 - 18.40) 6.01	(20.7 - 31.3) 27.7	(4.1 - 8.1)	(62 - 114) 84
Cafeteria Old Beach	(7.98 - 8.55)	(15.0 - 32.2)	(2.57 - 12.70)	(20.7 - 31.1)	(4.1 - 8.9)	(58-120)
Castle Peak Beach	8.18 (7.85 - 8.56)	25.3 (15.6 - 32.2)	6.51 (1.95 - 16.20)	28 (20.8 - 32.1)	6.5 (4.6 - 9.3)	91 (64 - 130)
Golden Beach	8.18 (7.99 - 8.50)	25.7 (15.1 - 32.4)	7.51 (2.63 - 15.80)	27.6 (20.5 - 31.2)	6.2 (4.1 - 8.6)	88 (61 - 120)
Kadoorie Beach	8.19	25.7	5.58	27.8	6.3	89
	(8.03 - 8.55)	(15.9 - 32.1)	(1.86 - 15.10)	(20.7 - 31.7)	(4.5 - 9.7)	(63 - 128)

#### Islands District

Islands District						
Cheung Chau Tung Wan Beach	8.22	29.6	2.93	27.3	6.6	92
Cheung Chau Tung wan Beach	(8.06 - 8.56)	(22.4 - 32.6)	(1.09 - 8.76)	(20.7 - 30.6)	(4.6 - 8.9)	(61 - 115)
Hung Shing Yeh Beach	8.23	30	4.98	27.4	6.6	92
Trung Shing Ten Beach	(7.90 - 8.54)	(20.6 - 33.7)	(1.23 - 15.90)	(20.3 - 31.5)	(4.3 - 8.2)	(62 - 128)
Kwun Yam Beach	8.21	29.2	3.26	27.2	7	99
Kwuli Talii Beach	(8.06 - 8.54)	(21.9 - 32.5)	(1.03 - 8.96)	(20.6 - 30.6)	(5.4 - 9.3)	(77 - 130)
Lo So Shing Beach	8.24	30.3	4.4	27.3	6.7	95
E0 50 Shilig Beach	(8.03 - 8.51)	(22.0-33.7)	(1.06 - 18.90)	(19.9 - 31.3)	(4.7 - 8.2)	(71 - 120)
Lower Cheung Sha Beach	8.31	27.4	10.76	27.9	6.5	92
Lower Cheung Sha Deach	(8.09 - 8.67)	(11.5 - 33.2)	(2.43 - 48.60)	(20.6 - 32.9)	(5.5 - 7.8)	(75 - 114)
Pui O Beach	8.28	29.2	15.63	29	6	88
I ul O Beach	(8.09 - 8.53)	(20.4 - 33.0)	(5.12 - 68.40)	(20.4 - 35.0)	(5.2 - 6.7)	(73 - 105)
Silver Mine Bay Beach	8.22	27	16.92	28.8	6.2	91
Silver White Day Deach	(7.97 - 8.45)	(15.1 - 32.3)	(3.68 - 159.00)	(20.0 - 33.9)	(4.0 - 10.0)	(61 - 130)
Tong Fuk Beach	8.3	29.6	7.04	27.9	6.4	92
Tong Fuk Beach	(8.08 - 8.61)	(20.3 - 33.1)	(2.09-21.80)	(20.0 - 32.6)	(5.3 - 9.0)	(75 - 130)
Upper Cheung Sha Beach	8.3	29.6	7.95	28	6.3	90
Opper Cheung Sha Beach	(8.10 - 8.67)	(20.7 - 33.2)	(1.68 - 29.70)	(20.2 - 32.2)	(5.1 - 8.5)	(75 - 115)

#### Tai Po District

Tai Po Lung Mei Beach	8.3	29.4	2.29	30.3	6.9	105
	(8.16 - 8.43)	(22.1 - 32.3)	(1.21 - 5.18)	(26.6 - 32.7)	(5.3 - 9.4)	(88 - 130)
Note: Data presented are arithmetic means; figures in brackets are ranges.						

Footnote:

Proctical Salinity Unit
 Practical Salinity Unit
 Nephelometric Turbidity Unit
 \*Beaches not open for swimming (no lifeguard service)