

香港泳灘水質

Beach Water Quality

2009

in Hong Kong

為更佳泳灘而努力

Strive for better beach water quality



環境保護署

香港特別行政區政府

Environmental Protection Department

The Government of the Hong Kong Special Administrative Region

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



EPD inspectors monitor water quality at Middle Bay Beach

Beach Water Quality in Hong Kong 2009

◆ Introduction

The objective of the Beach Water Quality Monitoring Programme is to monitor beach water quality and protect the health of the bathers. The background and details of EPD's monitoring activities can be found on [the website \(http://www.epd.gov.hk\)](http://www.epd.gov.hk).



Blue sky, bright sunlight and clean water
greet swimmers at Hong Kong beaches



This report summarises the beach monitoring data collected in 2009, and the gradings of the beaches and their compliance with the Water Quality Objective (WQO). In 2009, the EPD monitored 41 gazetted beaches and three non-gazetted beaches located in different parts of the territory. The monitoring frequency was at least three times a month during the bathing season from March to October. During monitoring, the EPD staff made field observations and collected samples for laboratory analyses of *E. coli* bacteria. The EPD staff also took measurements of dissolved oxygen, pH, salinity, temperature, and turbidity of beach waters.

Beach Water Quality in Hong Kong 2009

Hong Kong's beaches are assessed using a dual system: annual ranking and weekly grading based on the *E. coli* level in beach water, which indicates 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”, and those ranked “Good” and “Fair” meet the WQO for bathing waters.



A typical water quality grading board at beach

◆ Annual Beach Ranking in 2009

The beach water quality in 2009 was generally fine. Twenty-three (or 56%) out of 41 gazetted beaches were ranked as “Good”, slightly down from 24 last year. Fifteen other beaches (37%) were ranked as “Fair”, three (7%) as “Poor”, and none as “Very Poor”. In terms of WQO compliance, thirty-eight (or 93%) of the 41 gazetted beaches in Hong Kong complied with the WQO. This represents a significant surge in compliance rate from the 83% in the previous six years (2003 to 2008), and it is also the highest compliance rate since the monitoring programme began in 1986.



Fun for all ages at Shek O Beach

Beach Water Quality in Hong Kong 2009

The beaches with “Good” water quality ranking were mainly located in the Southern District (Hong Kong Island South), Sai Kung area, and Outlying Islands. Eleven out of 12 beaches in the Southern District were ranked as “Good” in 2009, only Big Wave Bay Beach was ranked as “Fair”. Of the nine beaches monitored on the Outlying Islands, eight were “Good” while Silver Mine Bay Beach was rated as “Fair”. In the Sai Kung area, four of the six beaches were “Good”. Among them, Hap Mun Bay Beach on Sharp Island is the cleanest gazetted beach in Hong Kong in 2009 in terms of overall *E. coli* levels. Clear Water Bay Second Beach and Silverstrand Beach were rated as “Fair”. On the western side, all six beaches along the Tuen Mun coast received a “Fair” ranking in 2009. In the Tsuen Wan area, Ma Wan Tung Wan Beach ranked as “Fair” in 2009 and was the only beach open to swimmers in the Tsuen Wan area. The water quality of the seven closed Tsuen Wan beaches has shown signs of improvement in 2009. Four of the seven beaches had achieved “Fair” water quality rankings, but the other beaches remained at “Poor” ranking. The Government is currently taking active measures to further improve the water quality of Tsuen Wan beaches and to ensure their early re-opening to the public for swimming.



An impressive view of the Ting Kau and Tsing Ma Bridges from Lido Beach

The EPD also monitored three non-gazetted beaches in Hong Kong: Discovery Bay (a popular beach on Lantau Island), a sandy beach adjacent to Kiu Tsui Beach in Sai Kung, and a planned artificial beach in Lung Mei, Tai Po. Discovery Bay and the beach adjacent to Kiu Tsui Beach continued to be ranked “Good” in 2009. Lung Mei has improved from “Poor” in 2007 and 2008 to “Fair” in 2009. Extension of public sewerage network to Lung Mei village area is underway, drainage diversion and pollution control measures will be implemented to improve the water quality in Lung Mei area in the coming years.

Beach Water Quality in Hong Kong 2009

In summary, the beach rankings have improved in 2009: the compliance of bathing WQO has surged from 83% achieved in the last six years (2003 to 2008) to a record high of 93% in 2009. The continued upgrading of sewage infrastructure and enforcement of environmental legislation would bring about gradual improvement of beach water quality in Hong Kong. We also observed that the relatively dry summer in 2009 contributed to the beach water quality improvement, noting that the total rainfall of 2,070 mm during the bathing season from March to October in 2009 was much lower than the 2,940 mm in the corresponding period in 2008.

◆ Weekly Beach Grading in 2009

The EPD issues weekly gradings for gazetted beaches which are open for swimming. The information is disseminated to the public through [weekly press releases](#), [the EPD's website](#), the beach hotline and beach noticeboards.



Golden Beach opens year round for swimmers

In 2009, the water quality of Southern District beaches was highly satisfactory. All ten gazetted beaches received “Good” or “Fair” gradings in the bathing season, except on a few occasions when Big Wave Bay and Chung Hom Kok Beaches were rated as “Poor” or “Very Poor” after heavy rain storms. South Bay, St. Stephen’s and Turtle Cove Beaches had the best water quality, achieving “Good” gradings in over 95% of the rating occasions. The water quality of Sai Kung beaches was generally very good. Hap Mun Bay and Trio Beaches achieved “Good” gradings over 90% of the

Beach Water Quality in Hong Kong 2009

rating occasions, while the other beaches were mostly “Good” or “Fair”. The water quality of the beaches in the Tuen Mun area was generally better than last year’s and nearly all graded as “Good” or “Fair”, except a “Poor” grading was observed once at Butterfly Beach. The gradings of Ma Wan Tung Wan Beach in Tsuen Wan were mostly maintained at “Fair”, while the gradings occasionally also fluctuated between “Good” and “Poor”. The beaches on the Outlying Islands were generally ideal for swimming, with Tong Fuk Beach on Lantau Island achieving 100% “Good” gradings. Kwun Yam, Hung Shing Yeh, Lo So Shing and Upper Cheung Sha Beaches achieved “Good” gradings over 95% of the rating occasions.



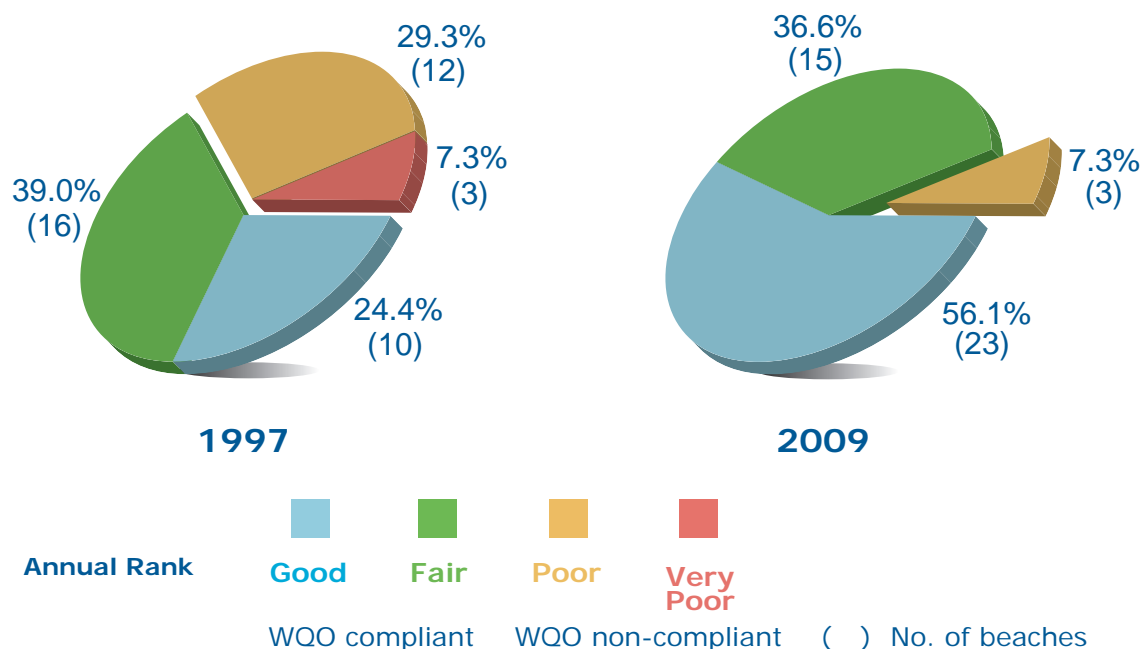
Kwun Yam Beach offers respite from hustle and bustle of city life

◆ Water quality trend

There has been a steady improvement of beach water quality in Hong Kong in the last decade. Out of the 41 gazetted beaches, those complying with the WQO have increased from 26 to 38 (63% to 93%) between 1997 and 2009. In the same period, the number of “Good” beaches has more than doubled from 10 to 23.

Beach Water Quality in Hong Kong 2009

Annual beach ranking of 1997 and 2009 compared



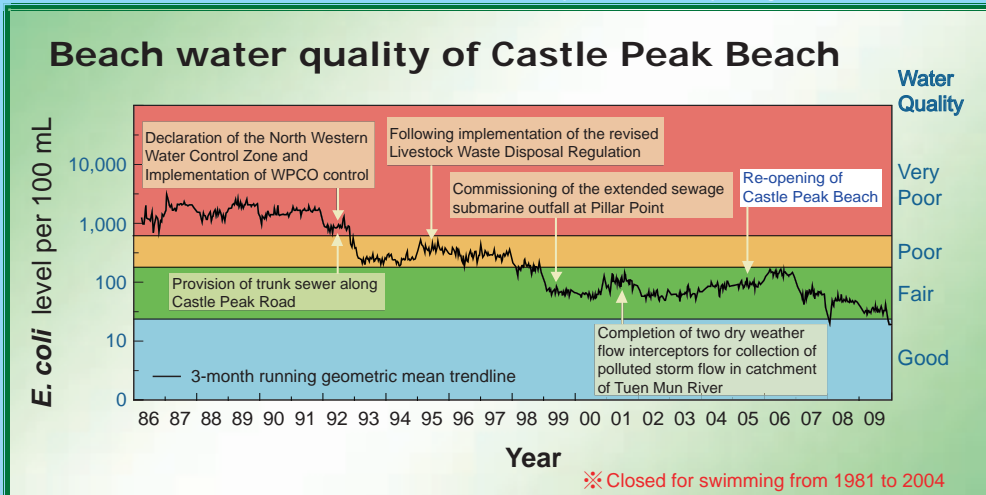
The overall WQO compliance rate has been maintained at above 80% since 1999. The compliance rate has soared to a record high of 93% in 2009. The improvements made at Castle Peak and Silver Mine Bay Beaches (see details in story boxes in the next two pages) were most noticeable as they have consistently complied with the WQO in recent years. Four out of the seven closed Tsuen Wan beaches met the WQO in 2009, compared to none in 2008. The improvement was attributed to enforcement of environmental legislation, extension of the sewerage network and enhanced sewage treatment facilities in the beach hinterlands.

Water quality trend lines of individual beaches over the last two decades (since 1986 when the monitoring programme began) are included in this report to show the changes over the years. Background and details of the beach monitoring programme are available at the EPD's website, and from the report "20 Years of Beach Water Quality Monitoring in Hong Kong" issued in 2006 (also accessible through [the website](#)).

Beach Water Quality in Hong Kong 2009

Improvement of beach water quality enabling the re-opening of Castle Peak Beach

Castle Peak Beach was closed in 1981 due to poor water quality.



Improvement programmes have successfully achieved clean water and made the beach safe for the public to swim.



Clean water and clear skies greet swimmers at Castle Peak Beach

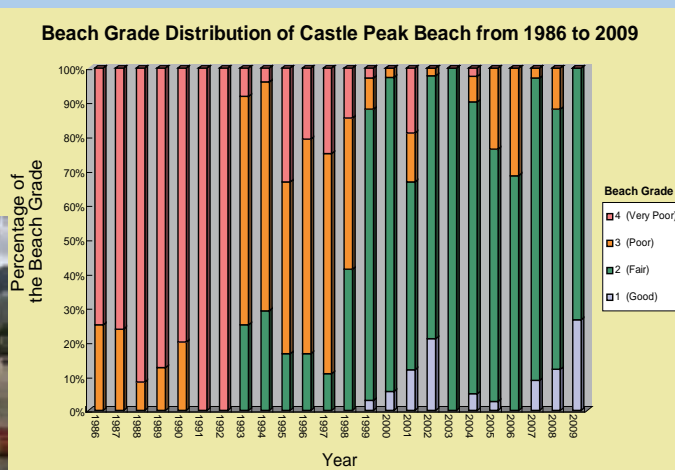
➤ Castle Peak Beach has been reopened to swimmers since 2005 and has quickly become a popular destination for the public.

➤ The water quality of Castle Peak Beach continues to improve after its re-opening in 2005 as shown in its weekly gradings.

➤ It has not recorded any "Grade 4" incidents, while there are more "Grade 1" occasions.



Fantastic scene at Castle Peak Beach



Beach Water Quality in Hong Kong 2009

Silver Mine Bay Beach

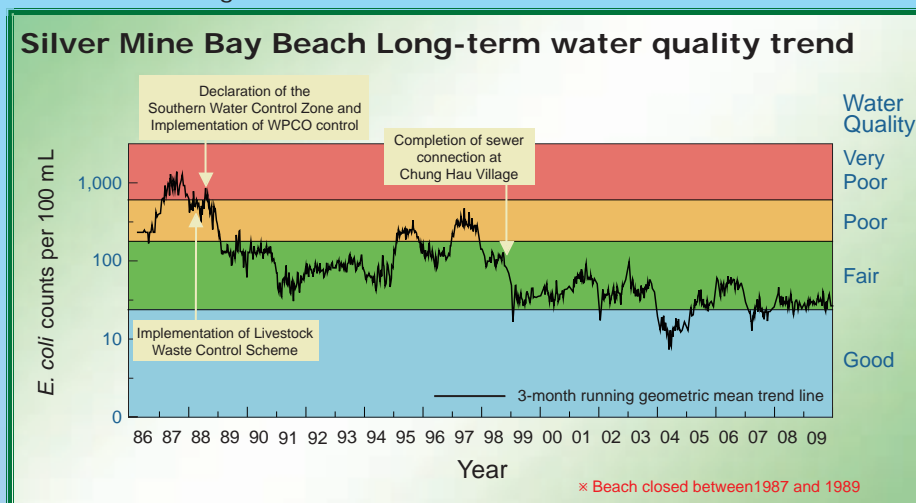
- A scenic beach on Lantau Island was closed in 1987 to 1989 due to unacceptable water quality.
- Annual geometric mean *E. coli* level was 2400 count/100 mL in 1987.

Major pollution sources:

- Livestock farms in Mui Wo
- Unsewered villages



A close-up shot of Silver Mine Bay Beach



Government's mitigation measures:

- Introduced Livestock Waste Control Scheme in Mui Wo in 1998 to stop illegal discharge from livestock farms.
- Commissioning of Mui Wo Sewage Treatment Works and implementing the wastewater control under the Water Pollution Control Ordinance in 1989.



Drainage construction works at Cheung Hau

Improvement observed:

- Silver Mine Bay Beach started to comply with the Water Quality Objective in 1989.
- Generally maintained at "Fair" ranking since 1989.
- Achieved "Good" ranking in 2004 and 2007.



At the beach: fun and exercise for families

Further improvement is expected...

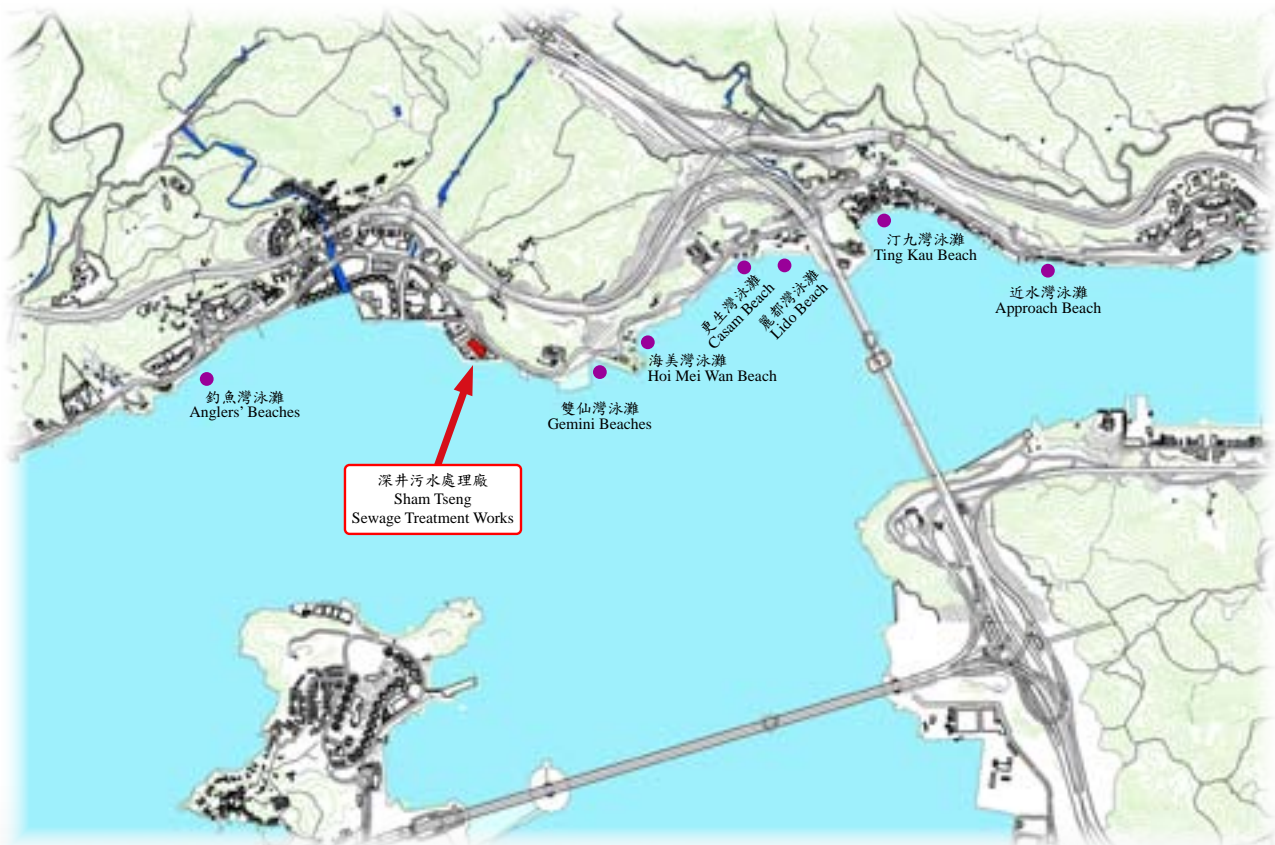
Sewerage improvement works in Mui Wo area are on-going and should be completed in 2013. More houses in the hinterland will gradually be connected to the public sewers.

Beach Water Quality in Hong Kong 2009

◆ Measures to improve Tsuen Wan Beaches

Seven gazetted beaches in Tsuen Wan remained closed to swimmers in 2009 due to poor and unstable water quality. They were Anglers', Approach, Casam, Gemini, Hoi Mei Wan, Lido and Ting Kau Beaches. The poor and unstable water quality was due to pollution sources in the unsewered hinterlands and fluctuating background bacterial levels in the marine waters off Tsuen Wan coast. Nevertheless, we observed some improvements in 2009: no beach in Tsuen Wan is ranked as "Very Poor" in three consecutive bathing seasons and four of them, namely, Casam, Hoi Mei Wan, Lido and Ting Kau Beaches, had improved from the annual ranking of "Poor" in 2008 to "Fair" in 2009.

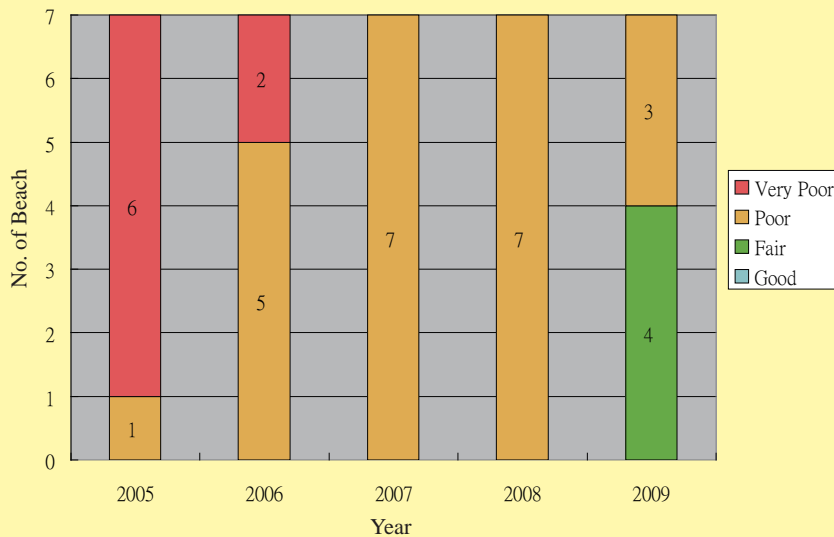
Map showing location of the seven closed beaches and Sham Tseng Sewage Treatment Works



The above improvements in recent years are achieved through Government's effort to provide sewerage along the coastal strip between Tsing Lung Tau and Ting Kau areas in phases and to step up enforcement actions in the areas. The successful full operation of the Sham Tseng Sewage

Beach Water Quality in Hong Kong 2009

Changes in annual ranking of Tsuen Wan closed beaches in the last five years



Treatment Works in early 2005 was an important milestone. Since then, the Government has progressively installed new public sewers in the beach hinterlands along Castle Peak Road at Tsing Lung Tau, Sham Tseng and Ting Kau areas, thus reducing polluted discharges to the nearby bathing waters. With

the Government's continuous effort in providing new public sewers in phases along the Castle Peak Road and in enforcing environmental legislation, improvement of water quality of these closed beaches has become more discernable in the last couple of years, as reflected by the changes in the annual ranking over the last five years.

Bacterial Levels in Tsuen Wan closed beaches (2005-2009)



Beach Water Quality in Hong Kong 2009

To further improve the water quality of Tsuen Wan beaches, the Government has been implementing the next stage of the Harbour Area Treatment Scheme ([HATS Stage 2A](#)), and began the testing and commissioning of the Advance Disinfection Facilities in late 2009 to disinfect effluent from the Stonecutters Island Sewage Treatment Works. Moreover, the extension of the public sewers to the beach hinterlands along Castle Peak Road has been completed in early 2010, and connections to unsewered villages or developments to these sewers are on-going. With the implementation of these sewerage improvement works and continuous pollution control efforts, the water quality in the area has shown some early signs of improvement. The Government is striving to further improve the water quality of Tsuen Wan beaches and paving the way for their early re-opening to the public for swimming.

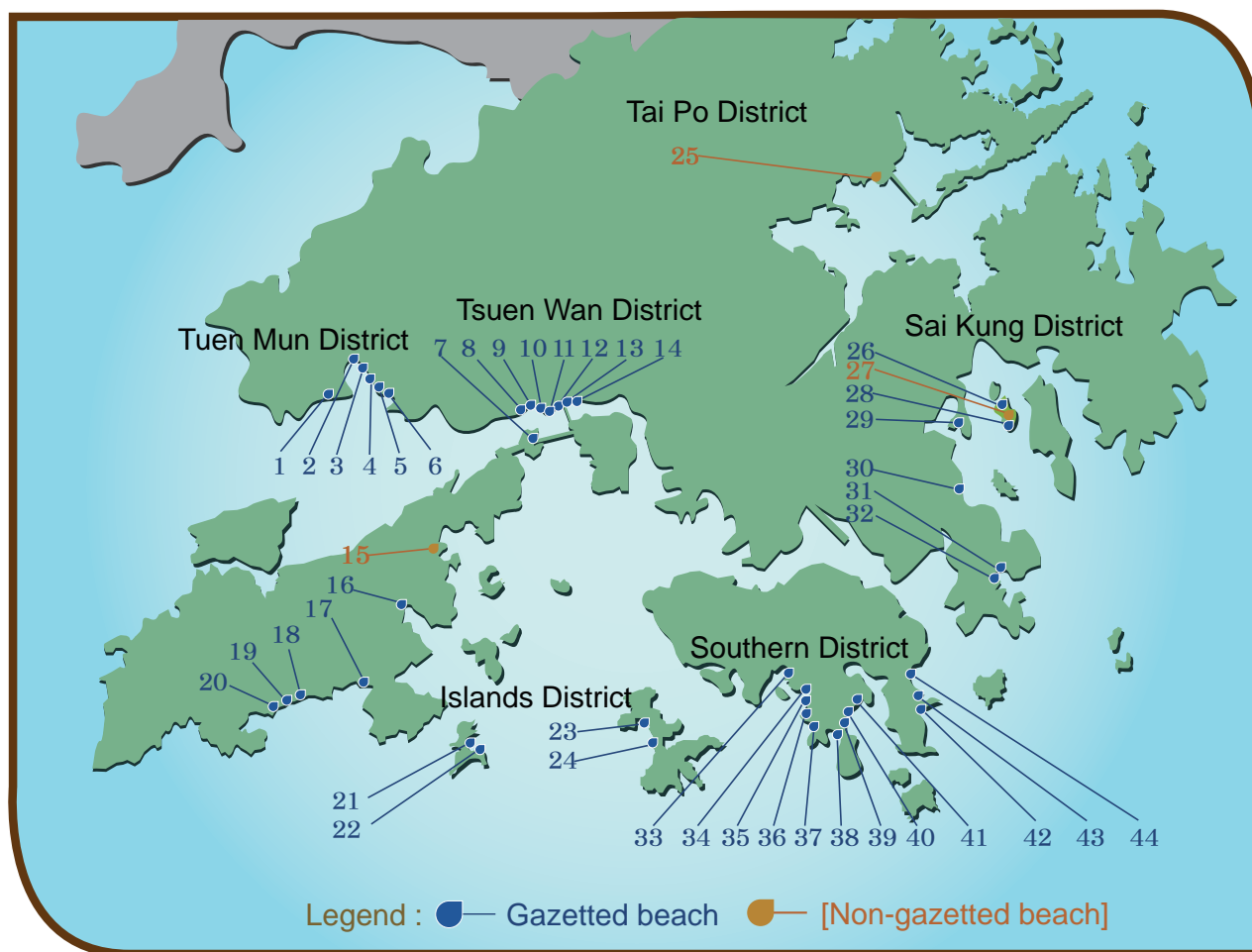


Advance Disinfection facility at Stonecutters Island Sewage Treatment Works

To summarise, the water quality of four of the seven closed Tsuen Wan beaches, namely Casam, Hoi Mei Wan, Lido and Ting Kau Beaches had improved from the annual ranking of “Poor” in 2008 to “Fair” in 2009. The relatively dry summer could also be a contributing factor to the observed improvement in 2009. The EPD will continue to closely monitor the seven beaches in the coming bathing season in order to ascertain that these improvements are indeed sustainable and that they could meet the WQO.

Beach Water Quality in Hong Kong 2009

Beaches monitored by the EPD



Tuen Mun District

1. Butterfly
2. Castle Peak
3. Kadoorie
4. Cafeteria Old
5. Cafeteria New
6. Golden

Tsuen Wan District

7. Ma Wan Tung Wan
8. Anglers'
9. Gemini
10. Hoi Mei Wan
11. Casam
12. Lido
13. Ting Kau
14. Approach

Islands District

15. [Discovery Bay]
16. Silver Mine Bay
17. Pui O
18. Lower Cheung Sha
19. Upper Cheung Sha
20. Tong Fuk
21. Cheung Chau Tung Wan
22. Kwun Yam
23. Hung Shing Yeh
24. Lo So Shing

Tai Po District

25. [Lung Mei]

Sai Kung District

26. Kiu Tsui
27. [Kiu Tsui (New)]
28. Hap Mun Bay
29. Trio
30. Silverstrand
31. Clear Water Bay First
32. Clear Water Bay Second

Southern District

33. Deep Water Bay
34. Repulse Bay
35. Middle Bay
36. South Bay
37. Chung Hom Kok
38. St. Stephen's
39. Stanley Main
40. Hairpin
41. Turtle Cove
42. Shek O
43. Rocky Bay
44. Big Wave Bay

Beach monitoring frequencies

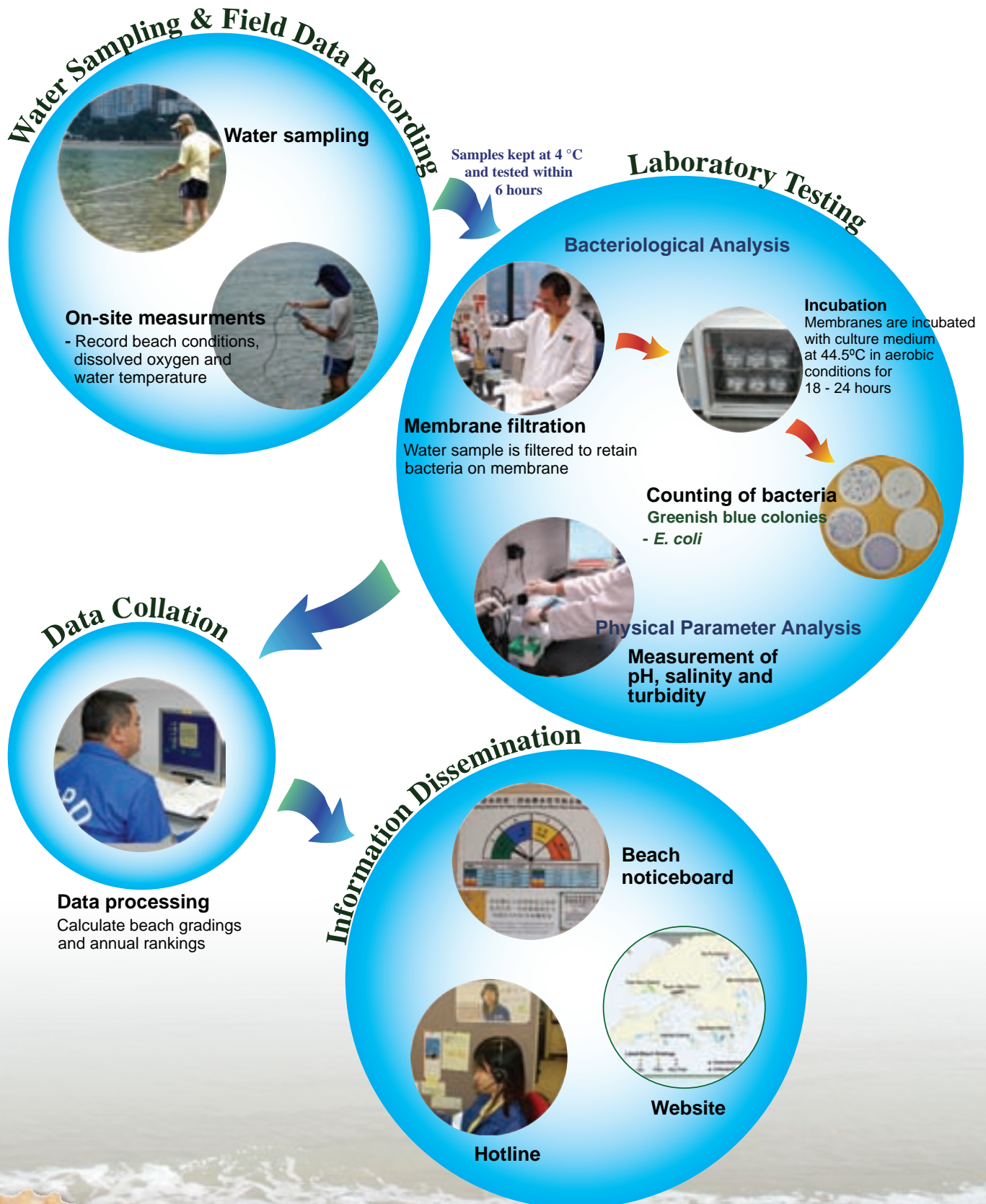
Beach	Monitoring frequency per month	
	Bathing season*	Non-bathing season
Gazetted beaches open all year round **	at least 3 times	at least 3 times
Other gazetted beaches	at least 3 times	once
Non-gazetted beaches	at least 3 times	once

* March to October

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

Beach Water Quality in Hong Kong 2009

Overview of various stages of the Beach Monitoring Programme



Beach Water Quality in Hong Kong 2009

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

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

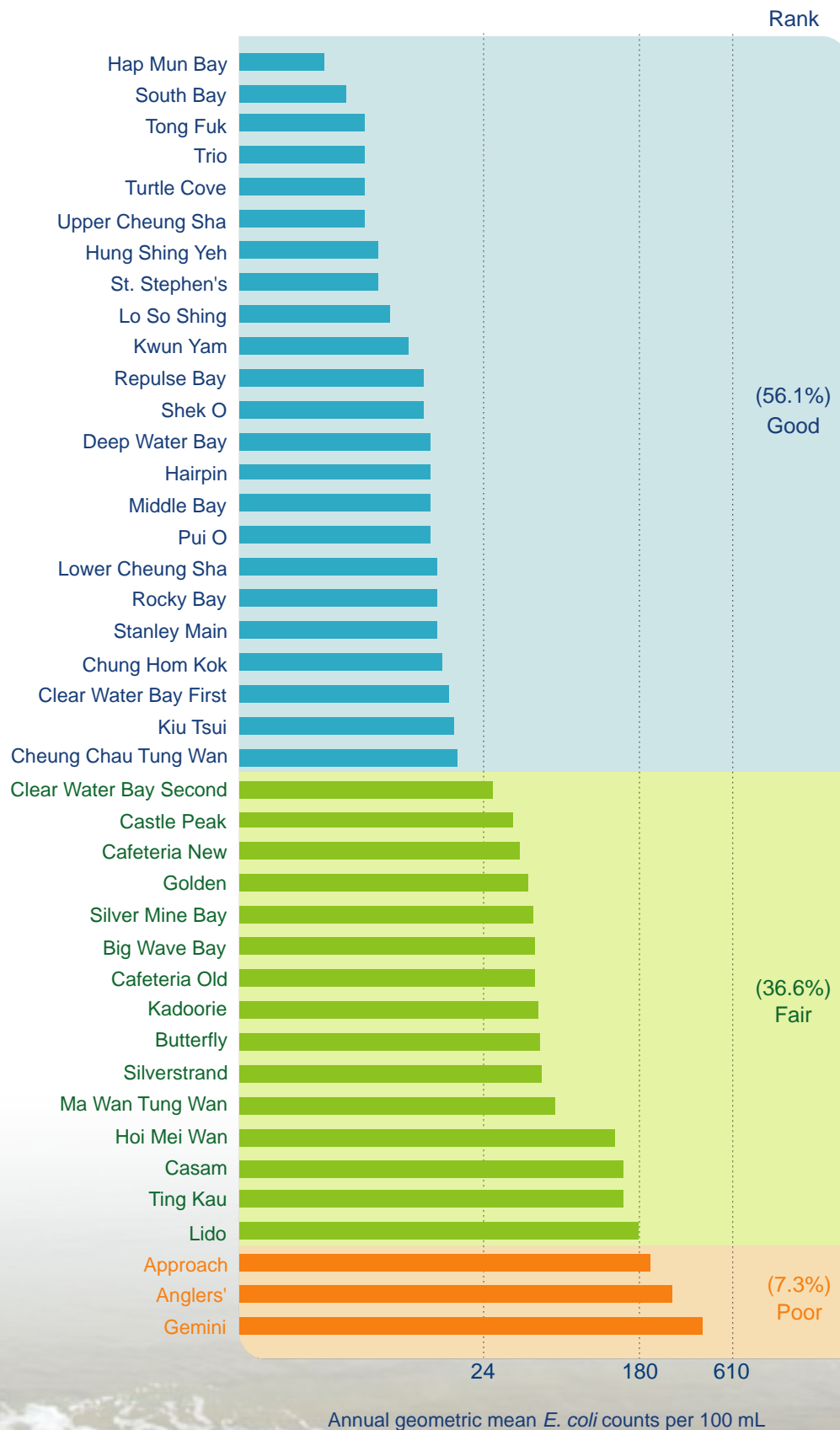
* Unless otherwise indicated, the *E. coli* count represents the geometric mean of the 5 most recent sampling occasions.

** Skin and gastrointestinal illnesses

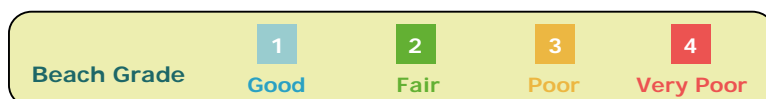
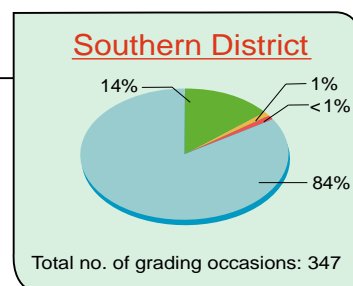
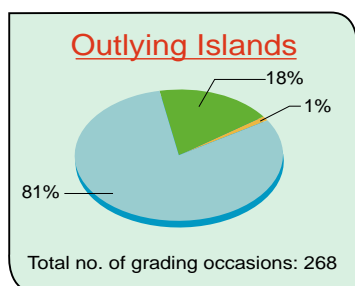
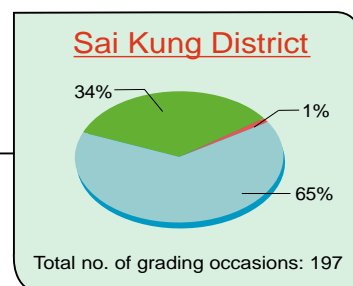
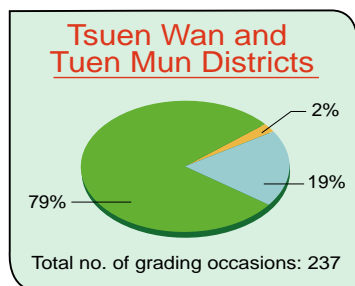
Beach Water Quality in Hong Kong 2009

Hong Kong's gazetted beaches

2009 annual ranking

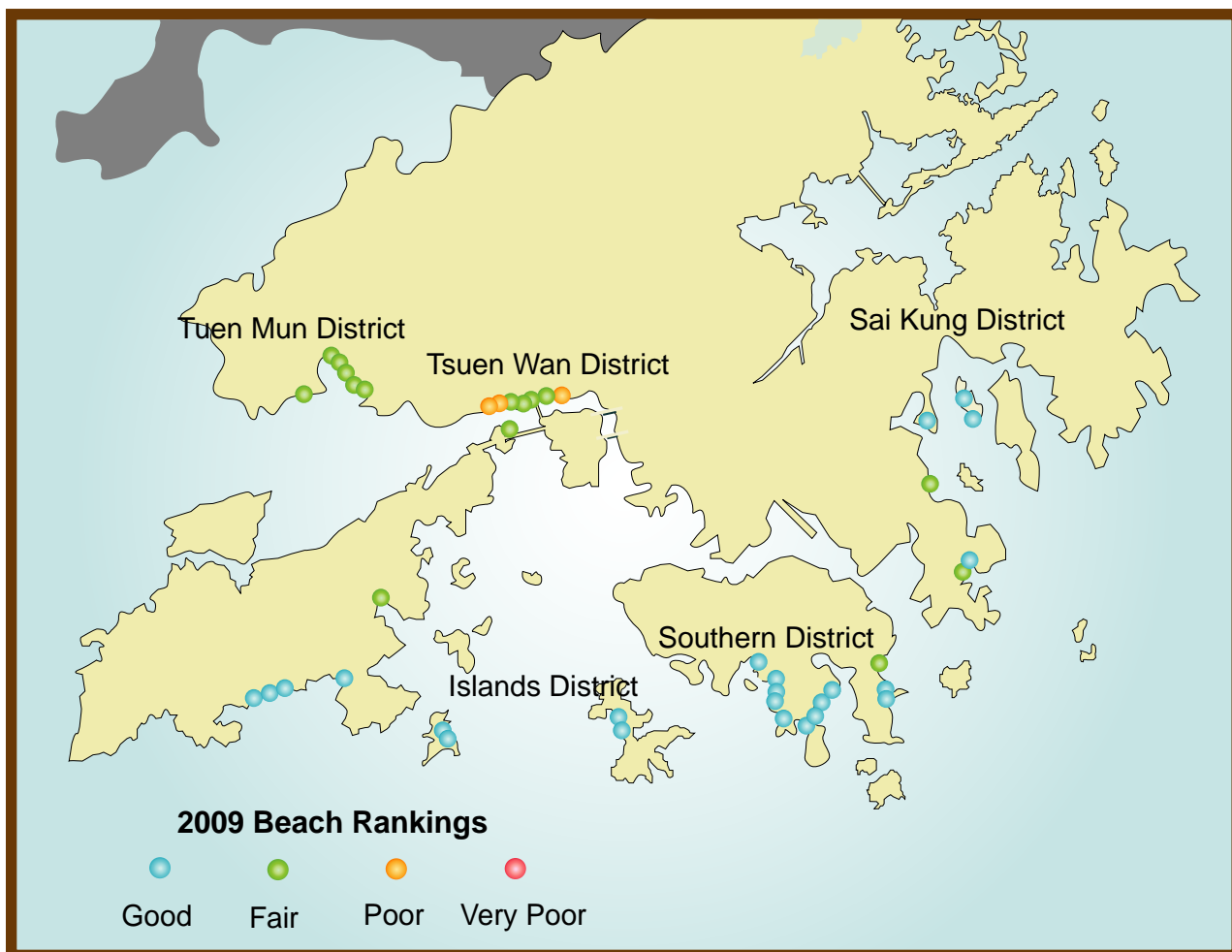


Beach grading summary by district in 2009



Beach Water Quality in Hong Kong 2009

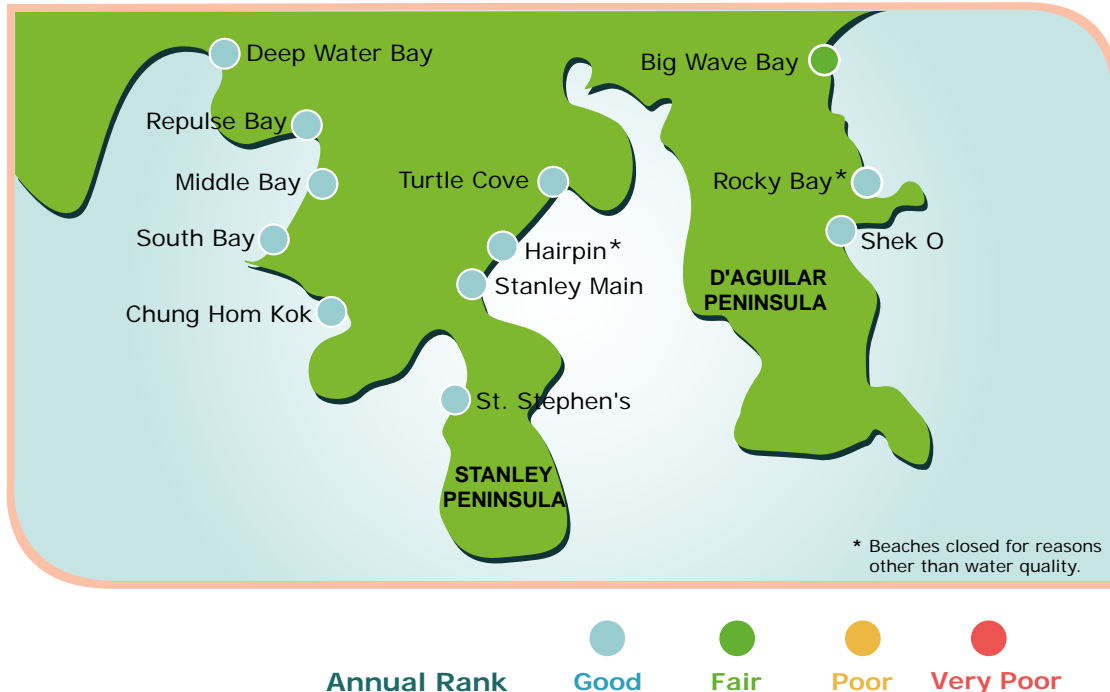
Annual Ranking of gazetted beaches at one glance



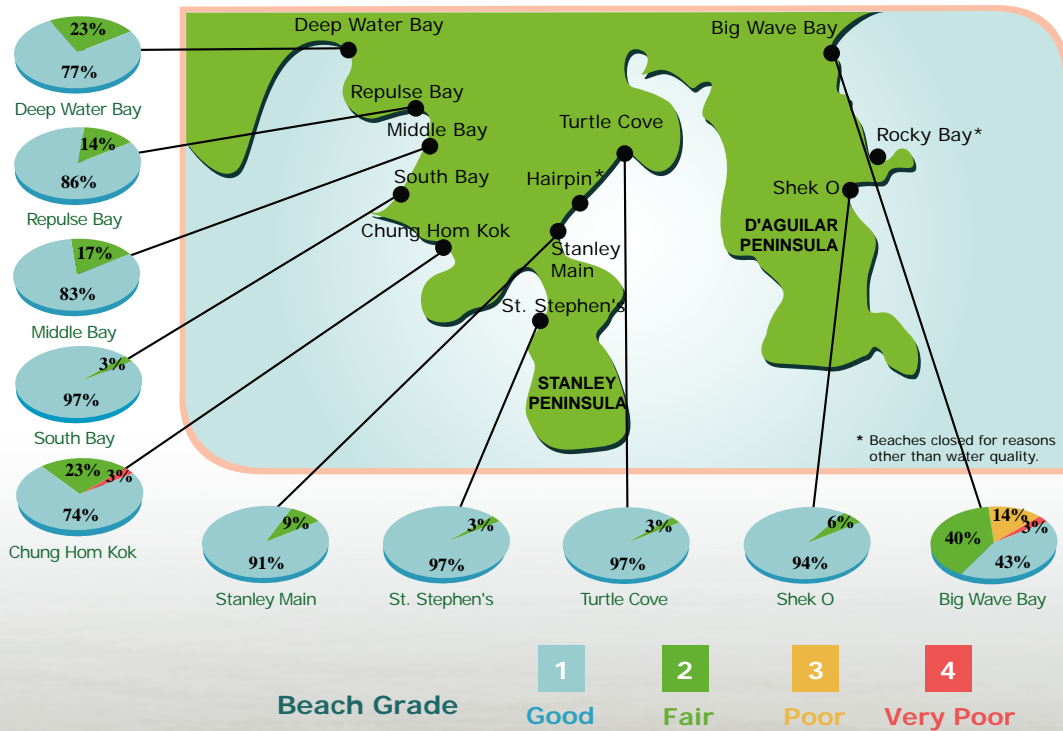
Beach Water Quality in Hong Kong 2009

Southern District beaches

Annual ranking



Weekly grading



* Closed beaches. No grading was made.

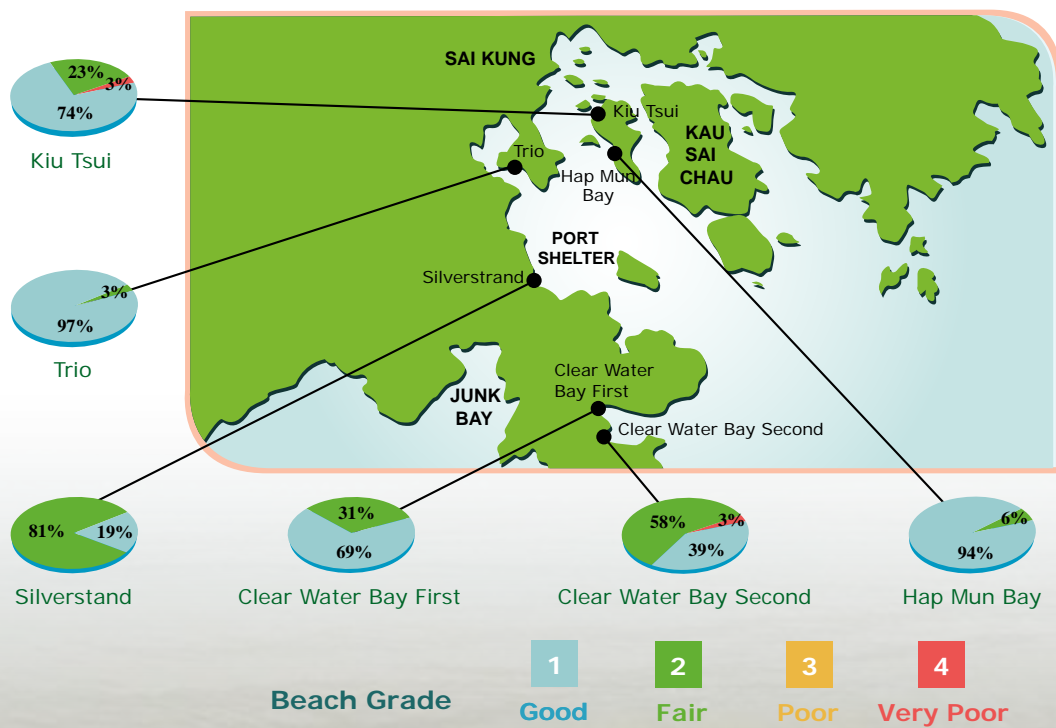
Beach Water Quality in Hong Kong 2009

Sai Kung beaches

Annual ranking



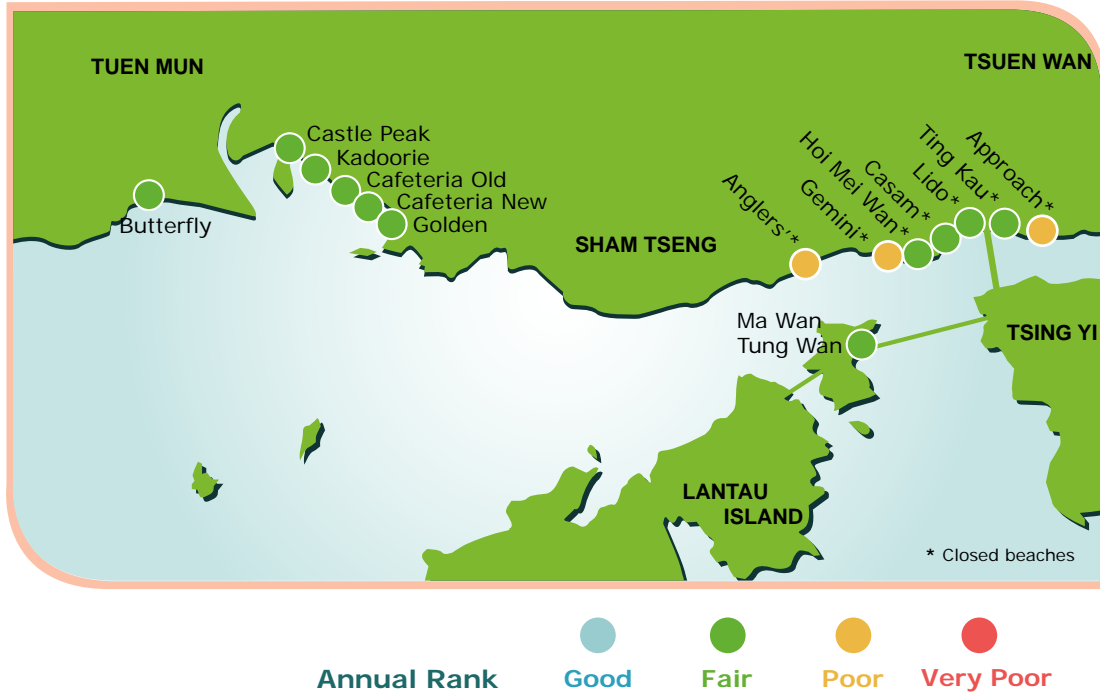
Weekly grading



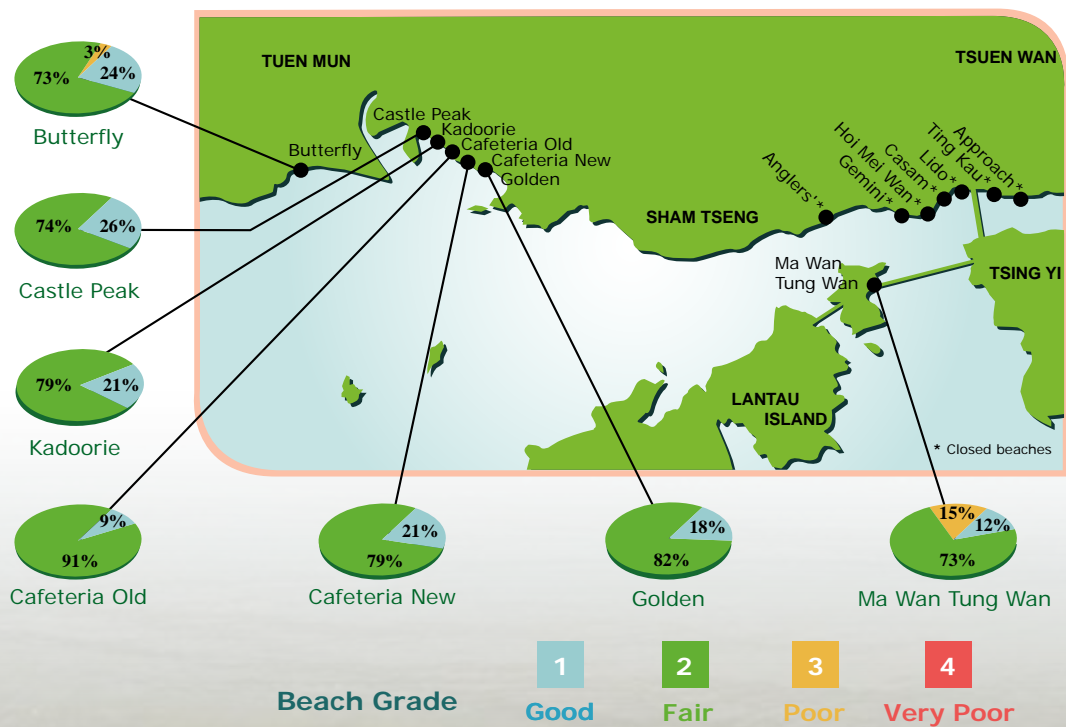
Beach Water Quality in Hong Kong 2009

Tsuen Wan and Tuen Mun beaches

Annual ranking



Weekly grading



* Closed beaches. No grading was made.

Beach Water Quality in Hong Kong 2009

Outlying Islands beaches

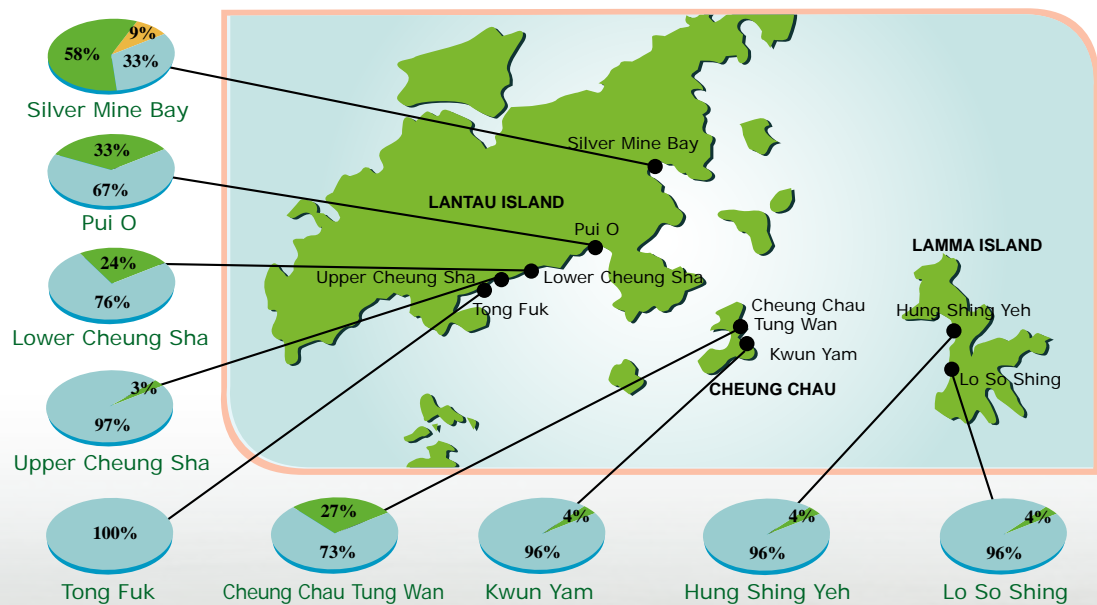
Annual ranking



Annual Rank

● Good	● Fair	● Poor	● Very Poor
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Weekly grading

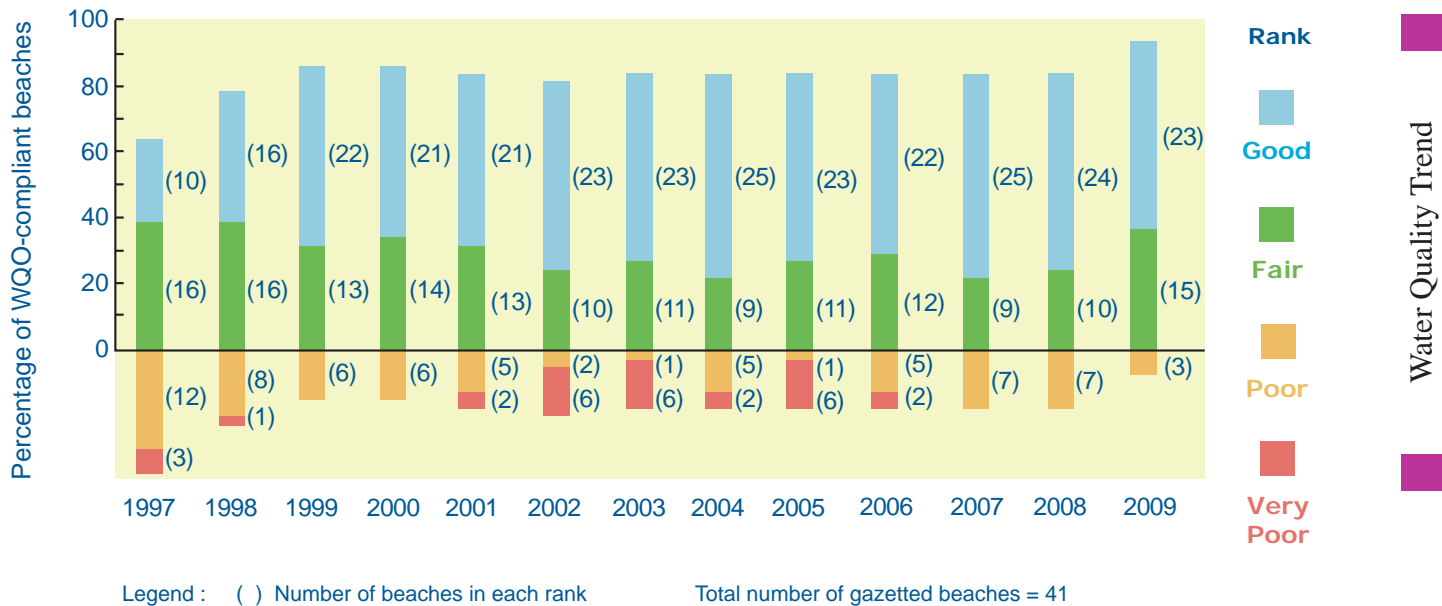


Beach Grade

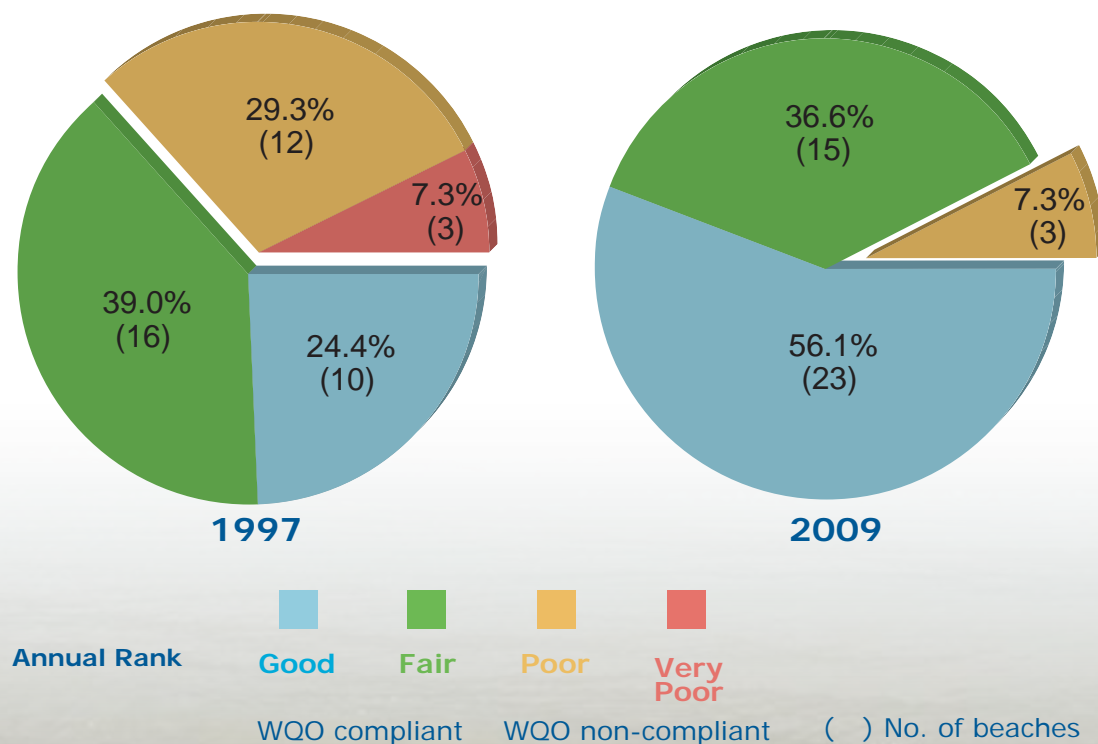
1 Good	2 Fair	3 Poor	4 Very Poor
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Beach Water Quality in Hong Kong 2009

Annual beach rankings from 1997 to 2009

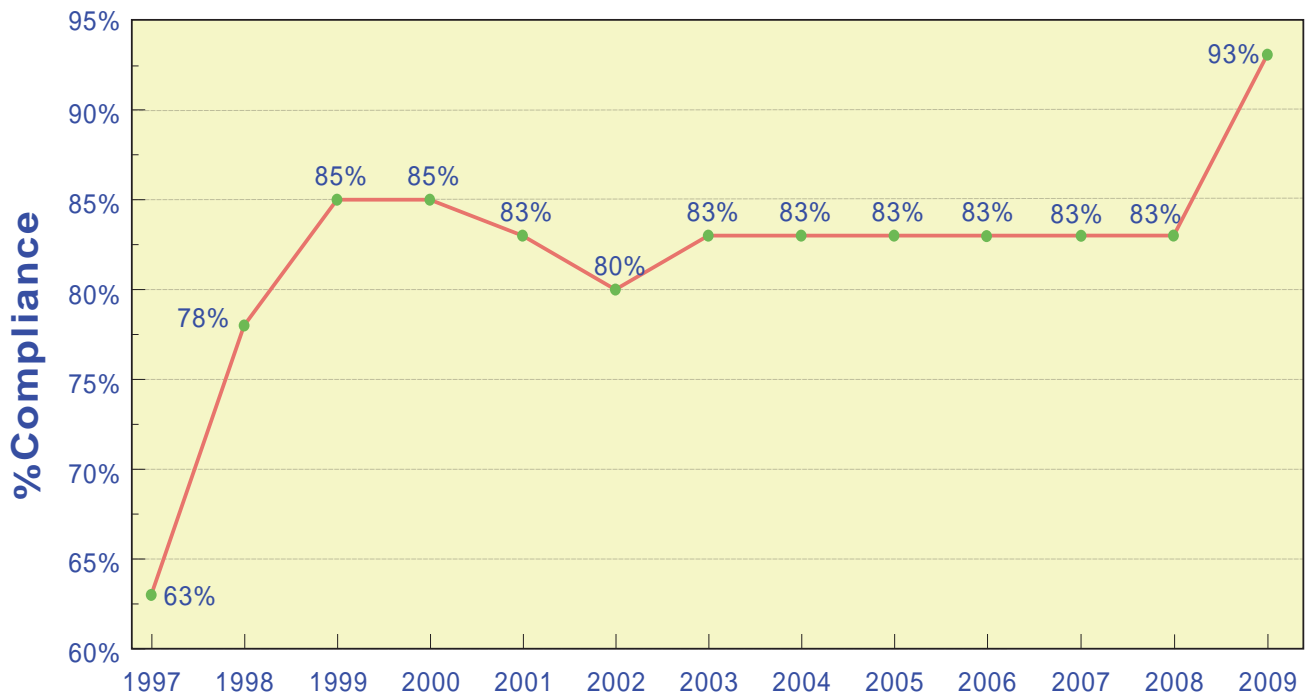


Annual beach ranking of 1997 and 2009 compared

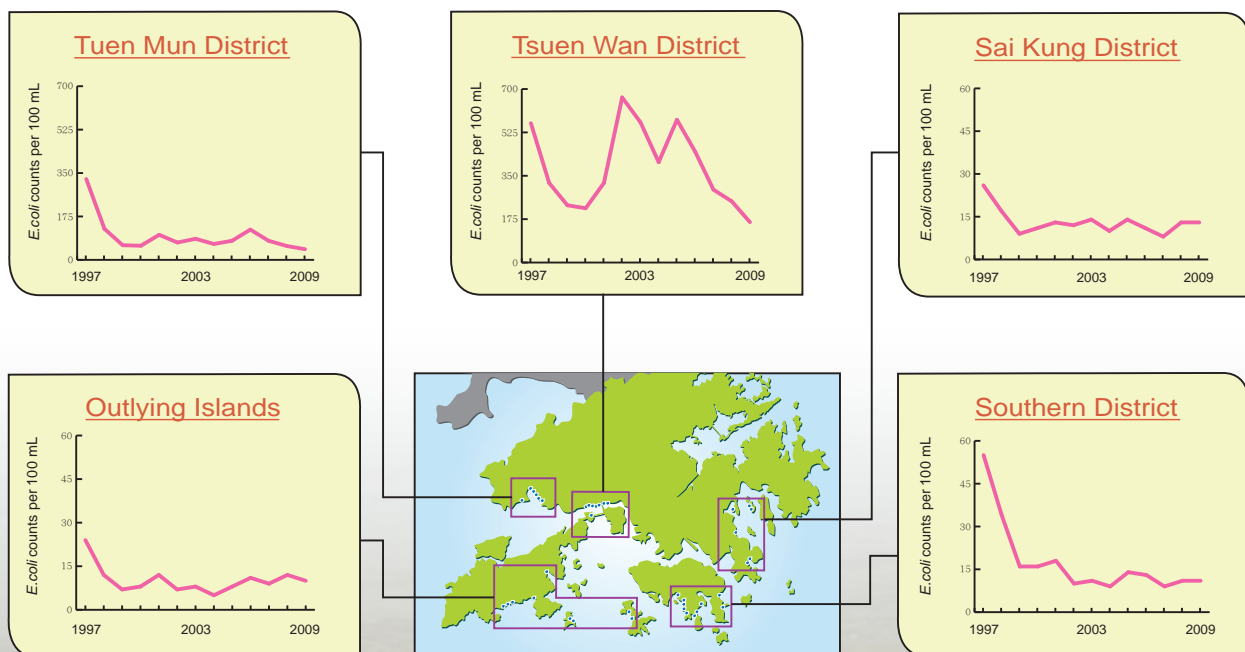


Beach Water Quality in Hong Kong 2009

Compliance with the Water Quality Objective at gazetted beaches, 1997 - 2009



Annual geometric mean *E. coli* levels by district, 1997 - 2009



Beach Water Quality in Hong Kong 2009

Appendix A - Annual geometric mean *E. coli* levels (1997 - 2009)

Southern District

Annual geometric mean *E. coli* levels

Beach	<i>E. coli</i> counts per 100 mL												
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Big Wave Bay	179	114	77	98	106	23	33	26	101	50	17	31	46
Chung Hom Kok	22	40	14	8	15	13	14	9	13	10	9	13	14
Deep Water Bay	55	46	14	16	18	9	9	7	8	7	7	9	12
Hairpin	44	72	17	18	10	6	7	7	13	11	19	10	12
Middle Bay	40	16	11	11	8	9	14	12	20	18	9	11	12
Repulse Bay	23	11	8	9	13	9	12	4	8	12	7	14	11
Rocky Bay	399	223	72	80	118	43	28	19	30	33	17	15	13
Shek O	102	70	32	29	31	13	11	16	19	24	18	22	11
South Bay	17	6	4	7	5	5	11	9	7	7	5	5	4
St. Stephen's	40	26	11	6	7	5	9	4	12	11	6	9	6
Stanley Main	72	24	13	12	9	8	6	5	7	10	9	10	13
Turtle Cove	40	14	12	11	15	8	4	5	8	7	5	5	5

Note: Figure in red indicates that the beach was closed in that year

Beach Water Quality in Hong Kong 2009

Sai Kung District

Annual geometric mean *E. coli* levels

Beach	<i>E. coli</i> counts per 100 mL												
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Clear Water Bay First	62	41	11	16	28	28	17	9	16	20	14	11	15
Clear Water Bay Second	66	44	12	26	22	14	21	10	19	13	9	19	27
Hap Mun Bay	3	2	2	2	1	2	4	3	4	4	3	5	3
Kiu Tsui	5	4	4	5	5	4	5	17	14	11	6	13	16
Silverstrand	148	99	32	61	100	133	97	74	67	30	33	35	51
Trio	30	21	17	10	12	6	10	2	6	5	2	12	5

Tuen Mun District

Annual geometric mean *E. coli* levels

Beach	<i>E. coli</i> counts per 100 mL												
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Butterfly	259	121	44	61	74	60	74	55	55	94	84	56	49
Cafeteria New	309	100	60	51	104	62	80	54	70	120	68	48	38
Cafeteria Old	435	138	58	57	125	74	76	61	81	150	67	45	46
Castle Peak	332	199	57	58	105	58	64	80	90	139	64	47	35
Golden	352	98	44	50	87	66	84	46	62	117	87	63	42
Kadoorie	290	130	109	68	120	114	160	98	117	118	101	87	48

Note: Figure in red indicates that the beach was closed in that year

Beach Water Quality in Hong Kong 2009

Tsuen Wan District

Annual geometric mean *E. coli* levels

Beach	<i>E. coli</i> counts per 100 mL												
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Anglers'	691	502	442	326	621	1,169	693	619	895	772	496	510	276
Approach	1,009	435	387	316	411	696	762	470	663	599	352	251	208
Casam	609	239	231	209	233	741	702	594	716	426	305	289	144
Gemini	458	399	350	258	323	1,155	875	1,102	1,042	853	566	481	410
Hoi Mei Wan	471	280	109	177	199	547	442	287	641	308	286	271	130
Lido	600	262	231	181	269	683	734	523	782	459	280	296	178
Ma Wan Tung Wan	110	92	51	39	133	201	159	101	132	171	78	53	60
Ting Kau	1,583	1,045	515	593	739	742	831	412	512	469	405	258	145

Note: Figure in red indicates that the beach was closed in that year

Outlying Islands

Annual geometric mean *E. coli* levels

Beach	<i>E. coli</i> counts per 100 mL												
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Cheung Chau Tung Wan	24	19	11	12	16	17	11	12	14	37	21	15	17
Hung Shing Yeh	5	3	3	5	6	2	5	4	4	4	6	4	6
Kwun Yam	32	21	6	10	11	9	7	5	10	13	9	10	9
Lo So Shing	3	2	4	2	5	2	3	2	3	4	3	5	7
Lower Cheung Sha	85	23	10	12	22	10	14	7	12	11	12	20	13
Pui O	36	16	10	10	17	10	15	9	10	16	30	24	12
Silver Mine Bay	481	123	39	50	67	42	50	14	34	52	22	43	45
Tong Fuk	14	10	4	5	6	4	3	4	5	5	4	10	5
Upper Cheung Sha	8	3	2	3	5	3	3	3	3	4	4	7	5

Beach Water Quality in Hong Kong 2009

Appendix B - Beach visitor number, 2009

Southern District

Visitor numbers during the 2009 bathing season

Beach	Daily average		Peak day	Peak month	Total
	Weekdays	Weekends & public holidays			
Big Wave Bay	227	1,310	3,400	30,065	139,017
Chung Hom Kok	270	942	2,500	21,010	117,890
Deep Water Bay	971	4,227	18,000	121,600	488,700
Hairpin	117	473	900	9,370	56,130
Middle Bay	54	453	1,200	13,000	43,900
Repulse Bay	6,645	11,511	23,000	295,620	2,002,702
Rocky Bay	-	-	-	-	-
Shek O	1,393	3,680	18,000	144,880	517,295
South Bay	129	1,176	3,900	36,695	112,244
St. Stephen's	168	612	2,100	16,270	75,317
Stanley Main	715	3,782	24,800	90,330	411,295
Turtle Cove	61	359	1,280	8,445	37,783

Note: Information provided by the Leisure and Cultural Services Department

Beach Water Quality in Hong Kong 2009

Sai Kung District

Visitor numbers during the 2009 bathing season

Beach	Daily average		Peak day	Peak month	Total
	Weekdays	Weekends & public holidays			
Clear Water Bay First	129	668	2,290	14,628	73,023
Clear Water Bay Second	2,764	6,603	23,000	277,480	972,850
Hap Mun Bay	480	1,037	5,550	57,340	160,477
Kiu Tsui	37	303	849	4,573	29,640
Silverstrand	131	401	1,551	15,622	52,807
Trio	391	713	3,050	31,060	120,631

Note: Information provided by the Leisure and Cultural Services Department

Tuen Mun District

Visitor numbers during the 2009 bathing season

Beach	Daily average		Peak day	Peak month	Total
	Weekdays	Weekends & public holidays			
Butterfly	800	1,508	2,400	38,000	250,550
Cafeteria New	828	1,812	4,690	62,010	278,710
Cafeteria Old	670	1,449	3,610	40,790	224,060
Castle Peak	422	1,373	1,800	24,250	176,550
Golden	1,768	6,099	10,100	120,400	766,550
Kadoorie	529	830	1,500	29,250	152,810

Note: Information provided by the Leisure and Cultural Services Department

Beach Water Quality in Hong Kong 2009

Tsuen Wan District

Visitor numbers during the 2009 bathing season

Beach	Daily average		Peak day	Peak month	Total
	Weekdays	Weekends & public holidays			
Anglers'	44	102	350	3,050	15,230
Approach	78	85	125	2,715	19,640
Casam	14	17	65	521	3,661
Gemini	6	9	25	243	1,656
Hoi Mei Wan	6	10	80	355	1,845
Lido	80	140	340	3,866	24,313
Ma Wan Tung Wan	575	2,234	8,791	55,263	268,598
Ting Kau	19	27	65	825	5,352

Note: Information provided by the Leisure and Cultural Services Department

Outlying Islands

Visitor numbers during the 2009 bathing season

Beach	Daily average		Peak day	Peak month	Total
	Weekdays	Weekends & public holidays			
Cheung Chau Tung Wan	192	544	4,800	15,420	74,050
Hung Shing Yeh	137	662	2,360	14,630	74,030
Kwun Yam	86	235	700	7,375	32,484
Lo So Shing	46	135	360	3,330	18,040
Lower Cheung Sha	103	295	700	8,750	40,000
Pui O	147	456	1,700	16,380	59,790
Silver Mine Bay	87	276	985	10,880	35,870
Tong Fuk	111	237	680	8,730	36,850
Upper Cheung Sha	83	219	900	6,010	30,880

Note: Information provided by the Leisure and Cultural Services Department

Beach Water Quality in Hong Kong 2009

Appendix C - Physicochemical Water quality data of gazetted beaches, 2009

Southern District :

summary of physicochemical water quality data of gazetted beaches, 2009

Beach	pH	Salinity (psu) ¹	Turbidity (NTU) ²	Temperature (°C)	Dissolved Oxygen (mg/L) (% Saturation)	
<i>Big Wave Bay Beach</i>	8.4 (8.1 - 8.7)	29.8 (20.8 - 33.4)	5.3 (2.6 - 13.5)	26.1 (18.5 - 30.8)	7.0 (5.9 - 8.6)	100 (88 - 122)
<i>Chung Hom Kok Beach</i>	8.4 (8.2 - 8.9)	30.1 (23.1 - 33.6)	6.8 (2.7 - 18.1)	26.5 (19.6 - 31.2)	6.8 (5.3 - 9.5)	96 (83 - 130)
<i>Deep Water Bay Beach</i>	8.4 (7.7 - 8.8)	29.6 (20.4 - 33.5)	8.4 (2.9 - 22.8)	26.9 (19.6 - 32.1)	6.8 (5.1 - 9.4)	96 (77 - 130)
<i>Hairpin Beach [Closed]</i>	8.4 (8.1 - 8.8)	30.5 (21.5 - 33.8)	6.2 (1.4 - 13.6)	26.4 (18.6 - 31.7)	7.0 (5.5 - 8.9)	100 (82 - 126)
<i>Middle Bay Beach</i>	8.4 (8.2 - 8.9)	30.0 (21.5 - 33.5)	7.2 (2.5 - 28.5)	26.4 (19.6 - 31.2)	6.9 (5.3 - 9.2)	99 (84 - 130)
<i>Repulse Bay Beach</i>	8.4 (8.1 - 8.8)	30.2 (21.8 - 33.6)	7.6 (2.3 - 21.5)	26.3 (19.6 - 30.0)	6.8 (5.5 - 8.8)	98 (84 - 130)
<i>Rocky Bay Beach [Closed]</i>	8.3 (8.1 - 8.8)	31.3 (25.8 - 33.4)	5.6 (2.8 - 12.5)	25.7 (18.5 - 30.0)	7.0 (4.6 - 8.8)	100 (67 - 130)
<i>Shek O Beach</i>	8.4 (8.2 - 8.8)	31.2 (24.0 - 33.6)	6.3 (2.4 - 18.2)	26.1 (18.8 - 30.5)	7.0 (5.9 - 9.4)	99 (90 - 129)
<i>South Bay Beach</i>	8.4 (8.2 - 9.0)	30.2 (22.8 - 33.7)	6.2 (2.3 - 13.7)	26.4 (19.8 - 30.0)	6.7 (5.2 - 9.9)	95 (79 - 130)
<i>St. Stephen's Beach</i>	8.4 (8.2 - 8.8)	30.1 (23.2 - 33.7)	6.6 (2.8 - 19.5)	26.5 (19.6 - 30.2)	6.7 (5.4 - 8.9)	95 (81 - 117)
<i>Stanley Main Beach</i>	8.4 (8.1 - 8.8)	29.9 (20.2 - 33.5)	13.6 (2.5 - 110.0)	26.7 (18.6 - 31.6)	7.1 (5.3 - 9.1)	101 (85 - 130)
<i>Turtle Cove Beach</i>	8.4 (8.2 - 8.7)	30.3 (22.2 - 33.8)	8.6 (1.9 - 32.5)	26.5 (18.8 - 31.4)	7.0 (5.6 - 8.9)	101 (84 - 130)

1. Practical Salinity Unit ; 2. Nephelometric Turbidity Unit
Note: Data presented are arithmetic means; figures in brackets are ranges.

Beach Water Quality in Hong Kong 2009

Sai Kung District :

summary of physicochemical water quality data of gazetted beaches, 2009

Beach	pH	Salinity (psu) ¹	Turbidity (NTU) ²	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)
Clear Water Bay First Beach	8.4 (8.3 - 8.8)	30.3 (26.2 - 33.4)	7.6 (2.6 - 24.3)	26.8 (18.4 - 31.5)	6.9 (5.7 - 8.8)	98 (79 - 123)
Clear Water Bay Second Beach	8.5 (8.3 - 8.8)	30.4 (24.6 - 34.0)	8.7 (2.3 - 26.5)	27.2 (18.5 - 32.2)	6.9 (5.8 - 8.6)	99 (81 - 118)
Hap Mun Bay Beach	8.5 (8.2 - 8.9)	31.0 (27.4 - 33.5)	4.1 (1.3 - 14.8)	27.2 (18.8 - 32.4)	6.8 (6.0 - 8.3)	98 (87 - 128)
Kiu Tsui Beach	8.5 (8.2 - 8.8)	30.7 (26.7 - 33.5)	4.1 (1.3 - 8.6)	27.3 (18.8 - 32.6)	6.9 (6.1 - 8.2)	101 (92 - 117)
Silverstrand Beach	8.4 (8.2 - 8.7)	29.9 (20.2 - 33.0)	7.1 (2.5 - 21.3)	26.8 (18.4 - 31.5)	6.9 (5.6 - 8.4)	97 (72 - 116)
Trio Beach	8.4 (8.3 - 8.9)	30.3 (23.8 - 33.3)	4.0 (1.0 - 12.2)	27.4 (19.0 - 32.6)	6.7 (5.4 - 8.0)	97 (84 - 110)

1. Practical Salinity Unit ; 2. Nephelometric Turbidity Unit
Note: Data presented are arithmetic means; figures in brackets are ranges.

Tsuen Wan District :

summary of physicochemical water quality data of gazetted beaches, 2009

Beach	pH	Salinity (psu) ¹	Turbidity (NTU) ²	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)
Anglers' Beach [Closed]	8.3 (8.1 - 8.5)	28.1 (16.9 - 32.7)	7.4 (1.8 - 12.7)	26.3 (19.0 - 30.8)	6.4 (3.6 - 7.9)	90 (52 - 108)
Approach Beach [Closed]	8.3 (8.0 - 8.6)	27.4 (17.1 - 32.3)	6.5 (2.4 - 18.8)	26.1 (20.0 - 30.1)	6.5 (5.0 - 7.9)	94 (77 - 109)
Casam Beach [Closed]	8.3 (8.0 - 8.6)	27.9 (18.3 - 32.6)	6.1 (2.3 - 11.8)	26.3 (19.7 - 30.4)	6.5 (5.2 - 7.8)	93 (75 - 104)
Gemini Beaches [Closed]	8.3 (8.1 - 8.6)	28.3 (18.5 - 32.6)	6.4 (2.1 - 10.2)	26.1 (19.3 - 30.1)	6.4 (4.5 - 7.8)	91 (68 - 108)
Hoi Mei Wan Beach [Closed]	8.2 (7.8 - 8.6)	27.7 (18.3 - 32.4)	5.9 (2.4 - 15.1)	26.6 (19.6 - 30.9)	6.4 (5.2 - 7.5)	91 (70 - 106)
Lido Beach [Closed]	8.3 (8.1 - 8.5)	27.9 (17.9 - 32.5)	7.0 (2.4 - 14.3)	26.3 (19.6 - 30.4)	6.5 (5.3 - 7.9)	92 (70 - 105)
Ma Wan Tung Wan Beach	8.3 (8.1 - 8.5)	28.3 (16.1 - 32.5)	12.9 (2.7 - 38.5)	27.3 (20.0 - 32.1)	6.7 (5.5 - 8.5)	95 (79 - 123)
Ting Kau Beach [Closed]	8.3 (8.1 - 8.5)	27.2 (16.4 - 32.0)	6.0 (2.1 - 16.5)	26.4 (19.8 - 30.6)	6.4 (5.5 - 7.4)	92 (78 - 104)

1. Practical Salinity Unit ; 2. Nephelometric Turbidity Unit
Note: Data presented are arithmetic means; figures in brackets are ranges.

Beach Water Quality in Hong Kong 2009

Tuen Mun District :

summary of physicochemical water quality data of gazetted beaches, 2009

Beach	pH	Salinity (psu) ¹	Turbidity (NTU) ²	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)
Butterfly Beach	8.3 (8.1 - 8.6)	25.2 (10.7 - 32.3)	11.8 (2.0 - 43.7)	27.3 (20.0 - 31.1)	6.6 (4.8 - 7.8)	94 (79 - 109)
Cafeteria New Beach	8.3 (8.0 - 8.9)	24.9 (9.9 - 32.1)	15.6 (2.8 - 55.1)	27.1 (20.0 - 31.0)	6.7 (5.3 - 8.0)	96 (82 - 105)
Cafeteria Old Beach	8.3 (8.0 - 8.8)	24.9 (9.9 - 32.2)	13.2 (2.5 - 41.5)	27.1 (20.1 - 30.7)	6.8 (5.2 - 7.9)	95 (74 - 109)
Castle Peak Beach	8.3 (8.0 - 8.9)	24.6 (9.9 - 32.1)	8.3 (2.4 - 24.8)	27.4 (20.9 - 31.2)	6.7 (4.9 - 8.6)	95 (72 - 121)
Golden Beach	8.2 (7.2 - 8.8)	25.0 (9.8 - 32.2)	17.2 (3.5 - 53.5)	26.9 (19.8 - 30.7)	6.8 (4.6 - 8.2)	96 (71 - 116)
Kadoorie Beach	8.3 (8.0 - 8.9)	24.7 (10.0 - 32.5)	11.8 (2.9 - 56.8)	27.3 (20.1 - 30.7)	6.8 (4.5 - 8.4)	96 (71 - 108)

1. Practical Salinity Unit ; 2. Nephelometric Turbidity Unit
Note: Data presented are arithmetic means; figures in brackets are ranges.

Outlying Islands :

summary of physicochemical water quality data of gazetted beaches, 2009

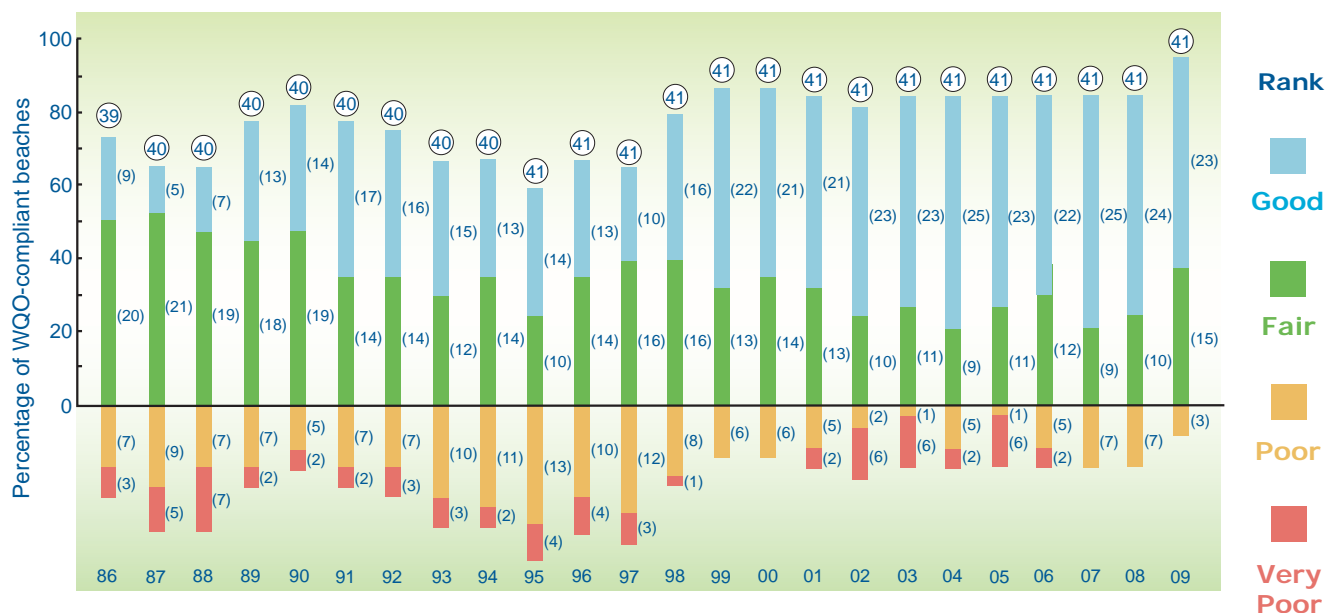
Beach	pH	Salinity (psu) ¹	Turbidity (NTU) ²	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)
Cheung Chau Tung Wan Beach	8.4 (8.1 - 8.7)	29.0 (23.7 - 32.7)	6.7 (2.8 - 16.4)	26.4 (19.5 - 31.0)	6.9 (5.5 - 8.6)	98 (82 - 130)
Hung Shing Yeh Beach, Lamma	8.3 (8.1 - 8.7)	29.3 (19.7 - 33.6)	9.4 (3.1 - 24.3)	26.3 (18.9 - 31.4)	6.5 (4.9 - 8.8)	93 (69 - 121)
Kwun Yam Beach, Cheung Chau	8.4 (8.1 - 8.7)	28.7 (23.4 - 32.6)	7.2 (3.1 - 19.5)	26.4 (19.5 - 30.4)	6.8 (5.6 - 9.7)	97 (81 - 131)
Lo So Shing Beach, Lamma	8.4 (8.2 - 8.8)	29.2 (17.5 - 33.8)	8.5 (3.3 - 33.9)	26.7 (19.6 - 31.2)	6.9 (5.2 - 7.9)	98 (72 - 113)
Lower Cheung Sha Beach, Lantau	8.4 (8.1 - 8.8)	28.5 (19.4 - 33.0)	16.3 (3.6 - 69.4)	27.1 (19.3 - 32.3)	6.9 (5.4 - 8.3)	98 (85 - 112)
Pui O Beach, Lantau	8.4 (8.2 - 8.8)	28.2 (15.6 - 33.1)	20.6 (5.2 - 70.6)	27.4 (19.4 - 33.0)	6.8 (5.2 - 9.4)	98 (80 - 118)
Silver Mine Bay Beach, Lantau	8.3 (8.0 - 8.8)	26.0 (14.6 - 32.6)	12.6 (4.3 - 60.5)	27.7 (19.5 - 34.0)	6.7 (3.9 - 9.5)	97 (65 - 130)
Tong Fuk Beach, Lantau	8.4 (8.2 - 8.8)	28.7 (20.1 - 33.1)	12.7 (3.7 - 43.4)	26.9 (19.4 - 32.0)	7.0 (5.3 - 8.7)	99 (83 - 112)
Upper Cheung Sha Beach, Lantau	8.4 (8.2 - 8.8)	28.5 (19.9 - 33.1)	15.7 (3.9 - 93.7)	26.9 (19.5 - 32.0)	7.0 (5.5 - 8.1)	100 (85 - 113)

1. Practical Salinity Unit ; 2. Nephelometric Turbidity Unit
Note: Data presented are arithmetic means; figures in brackets are ranges.

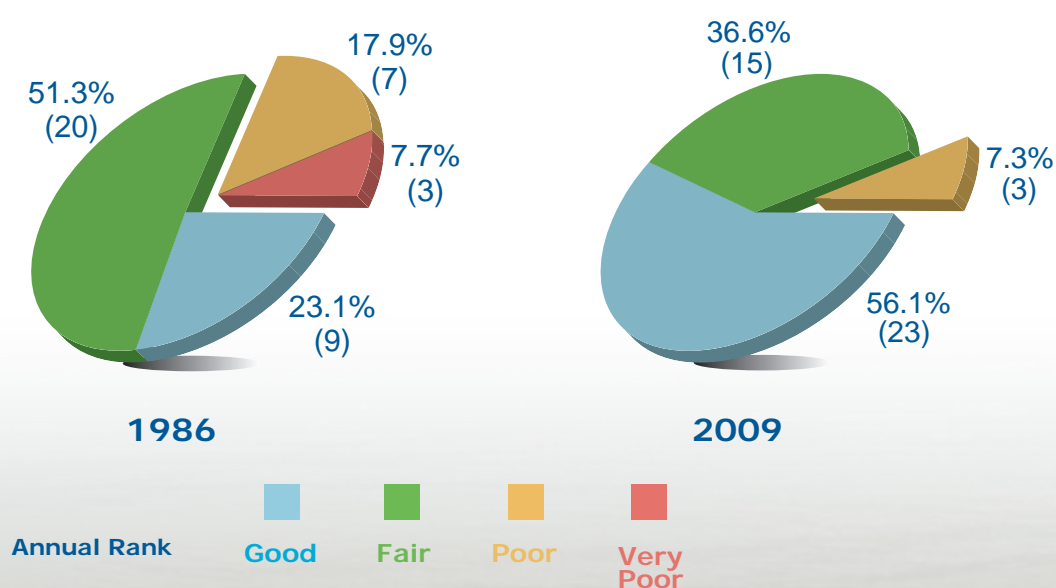
Beach Water Quality in Hong Kong 2009

Appendix D - Long-term trend of beach water quality (1986-2009)

Annual beach rankings from 1986 to 2009



Annual beach ranking of 1986 and 2009 compared



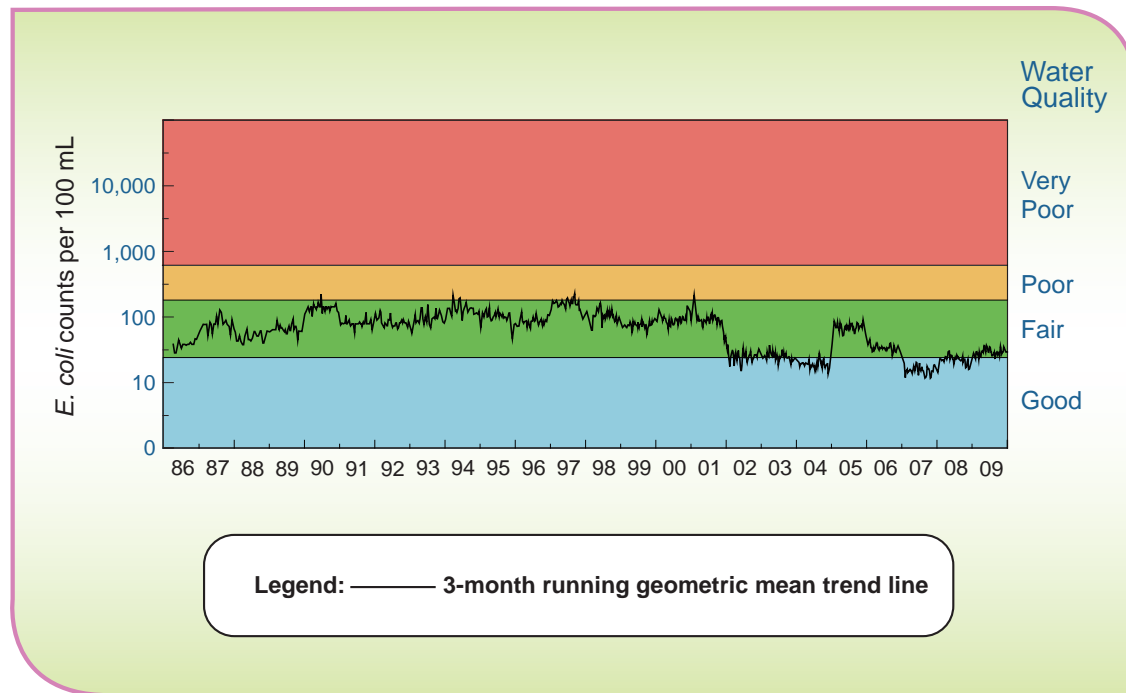
WQO compliant WQO non-compliant () No. of beaches
 Note: Two beaches degazetted in 1995 were excluded from the calculation.

Beach Water Quality in Hong Kong 2009

- Southern District

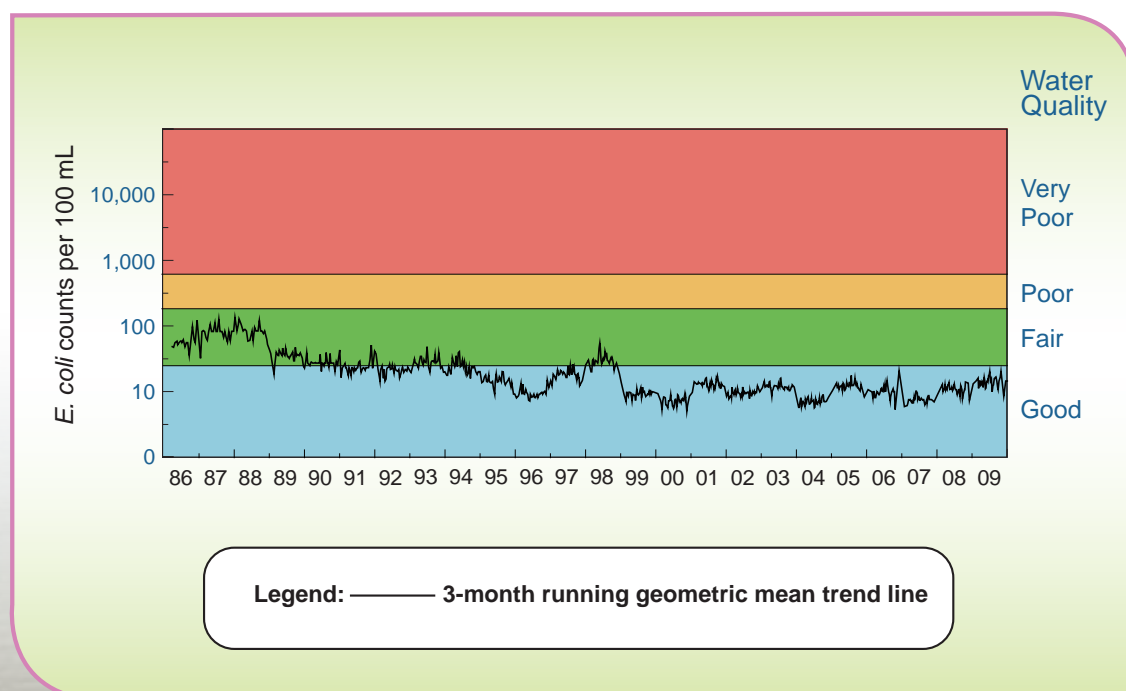
Long-term trend of beach water quality

- Big Wave Bay Beach



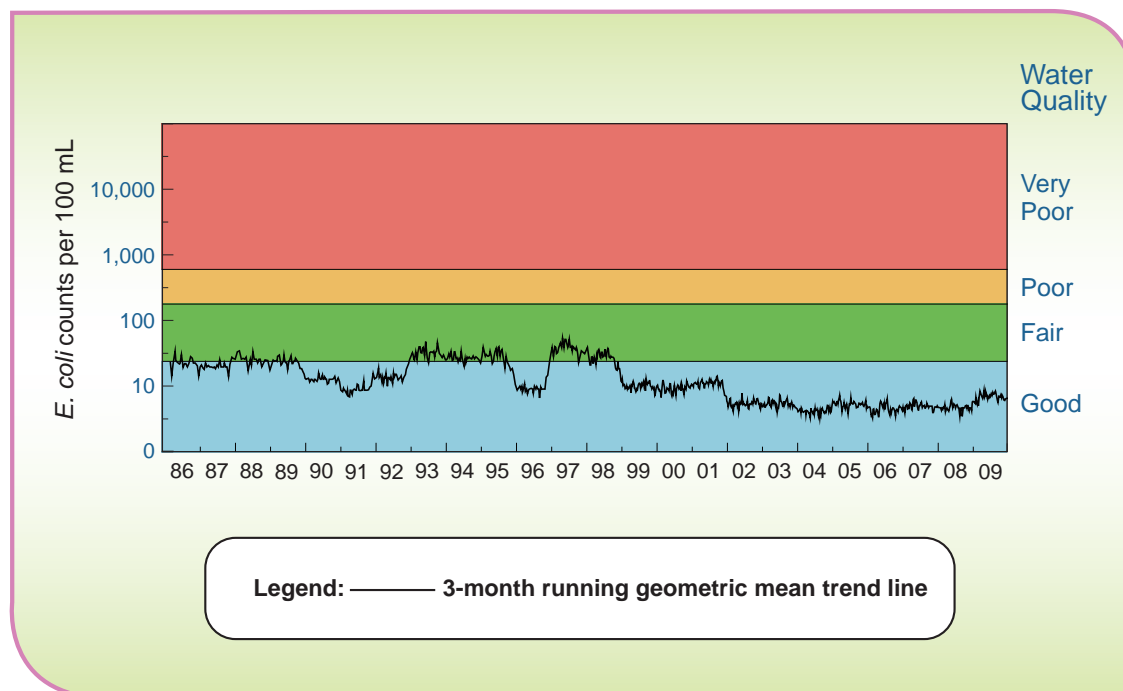
Long-term trend of beach water quality

- Chung Hom Kok Beach

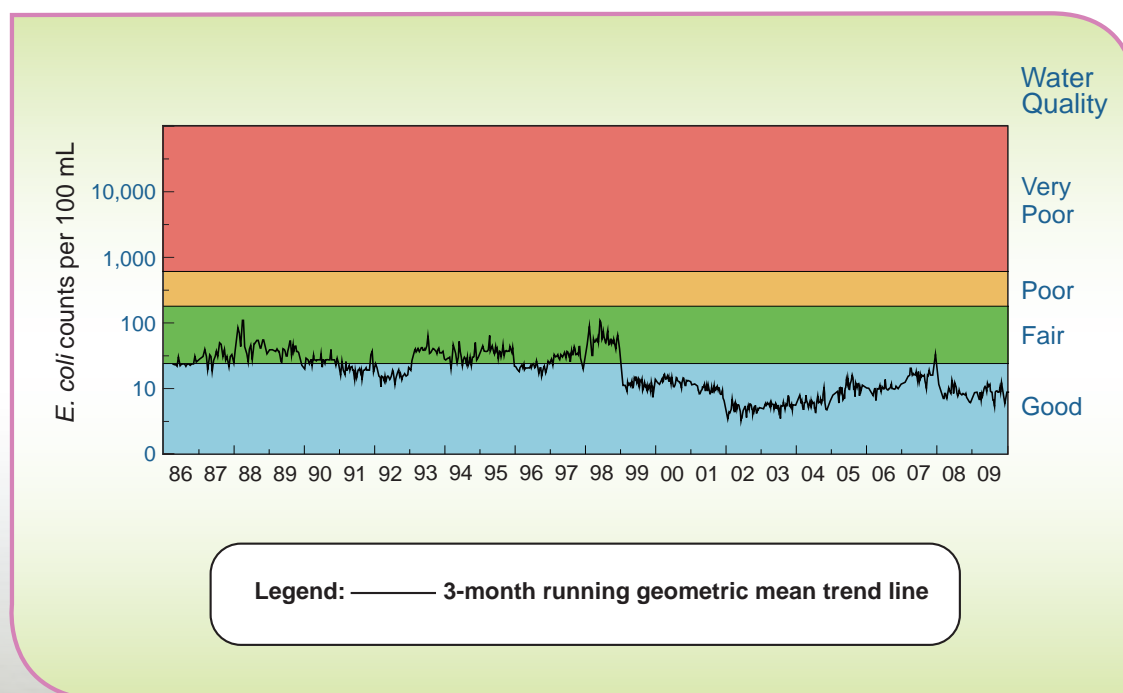


Beach Water Quality in Hong Kong 2009

Long-term trend of beach water quality - Deep Water Bay Beach

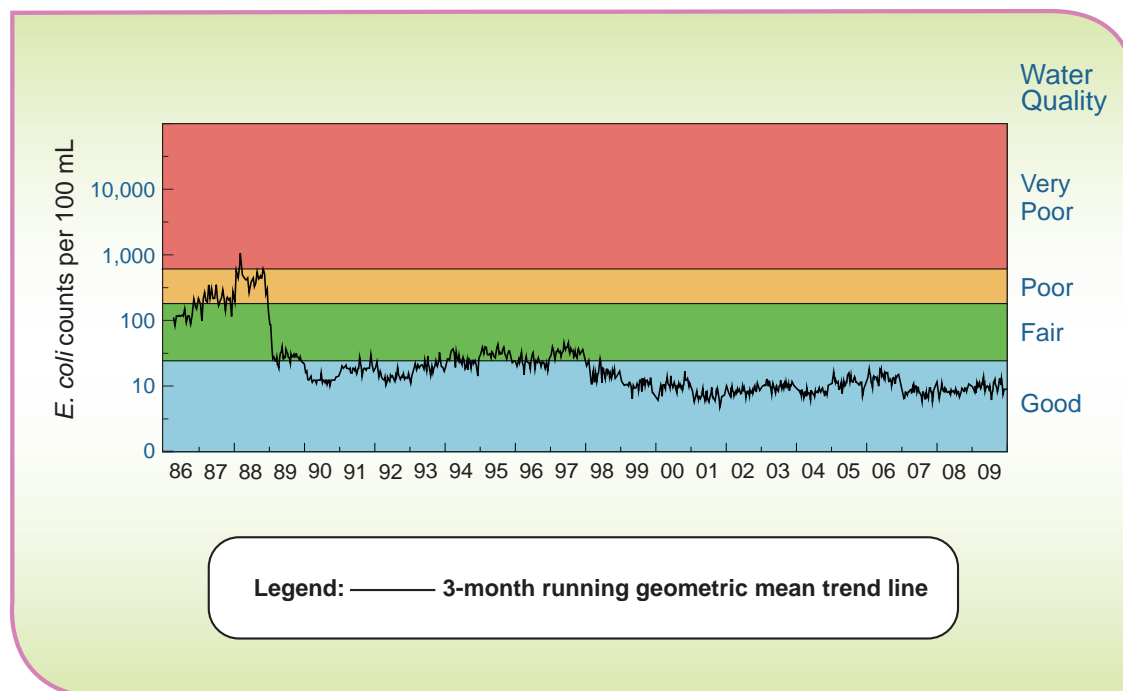


Long-term trend of beach water quality - Hairpin Beach

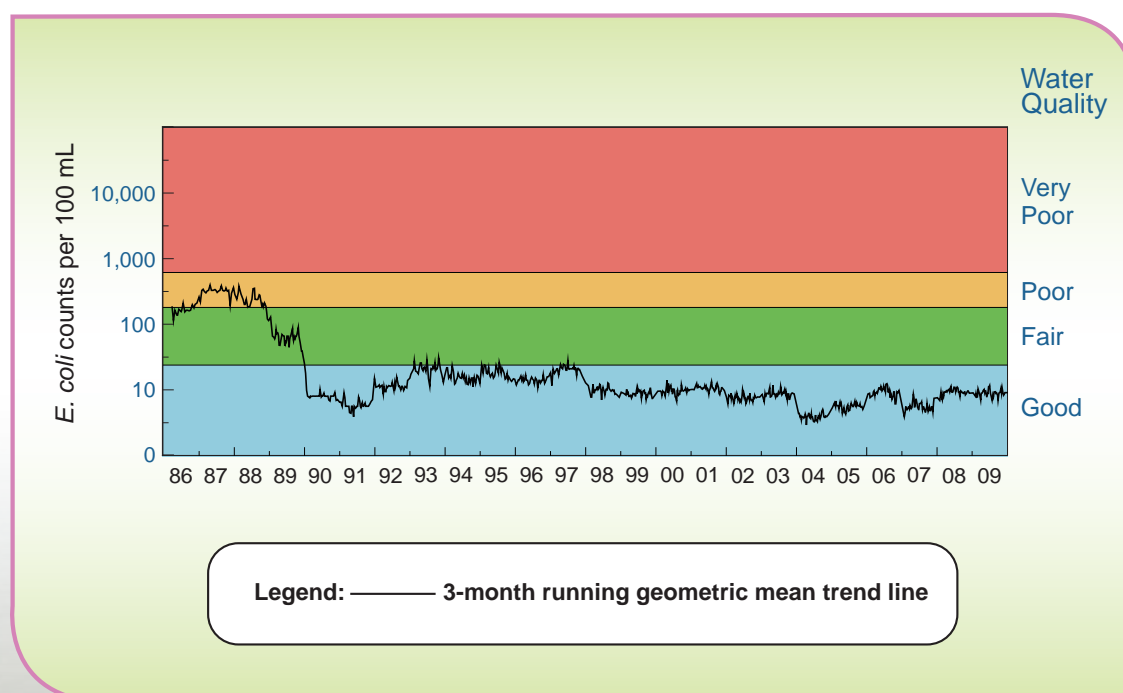


Beach Water Quality in Hong Kong 2009

Long-term trend of beach water quality - Middle Bay Beach

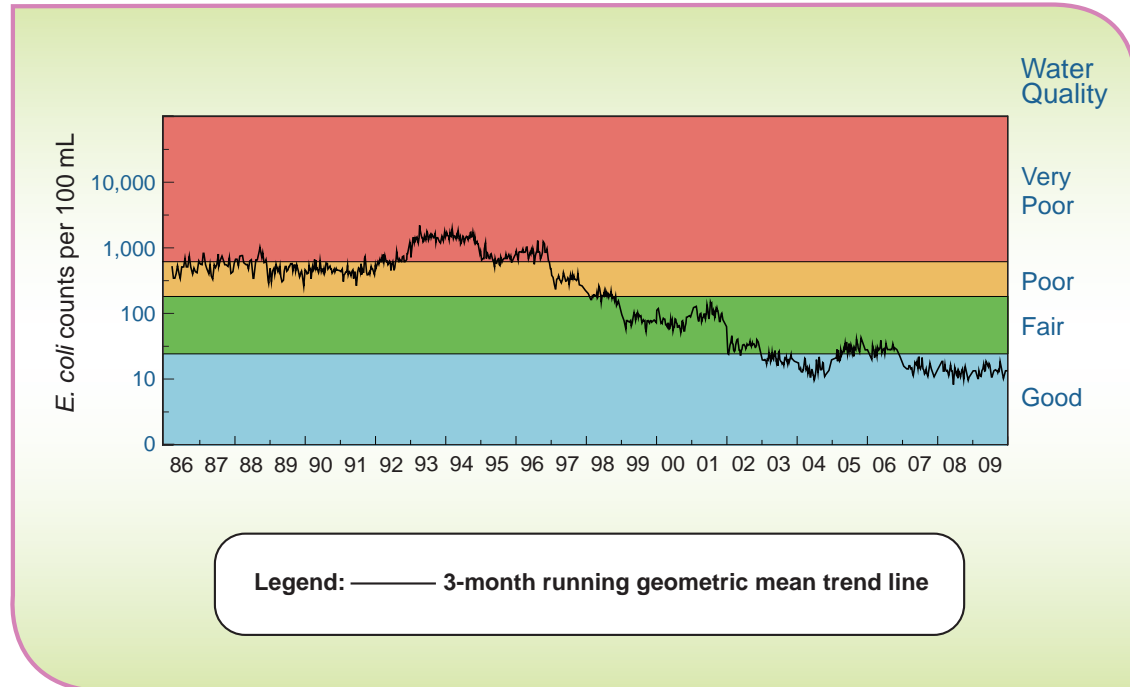


Long-term trend of beach water quality - Repulse Bay Beach

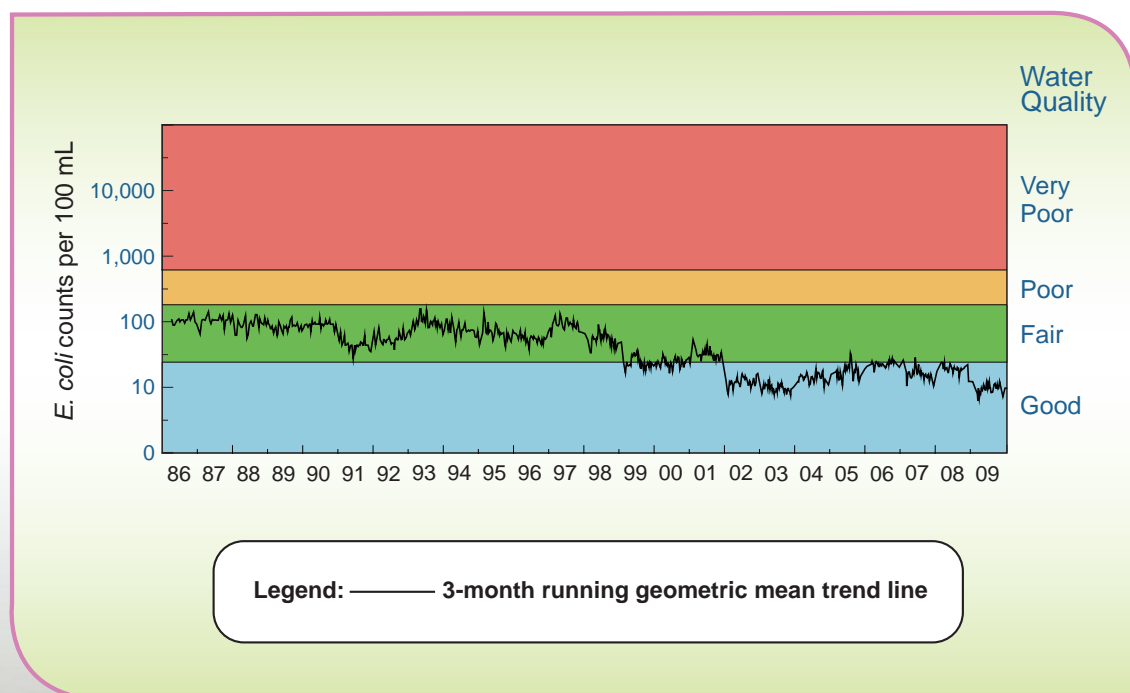


Beach Water Quality in Hong Kong 2009

Long-term trend of beach water quality - Rocky Bay Beach

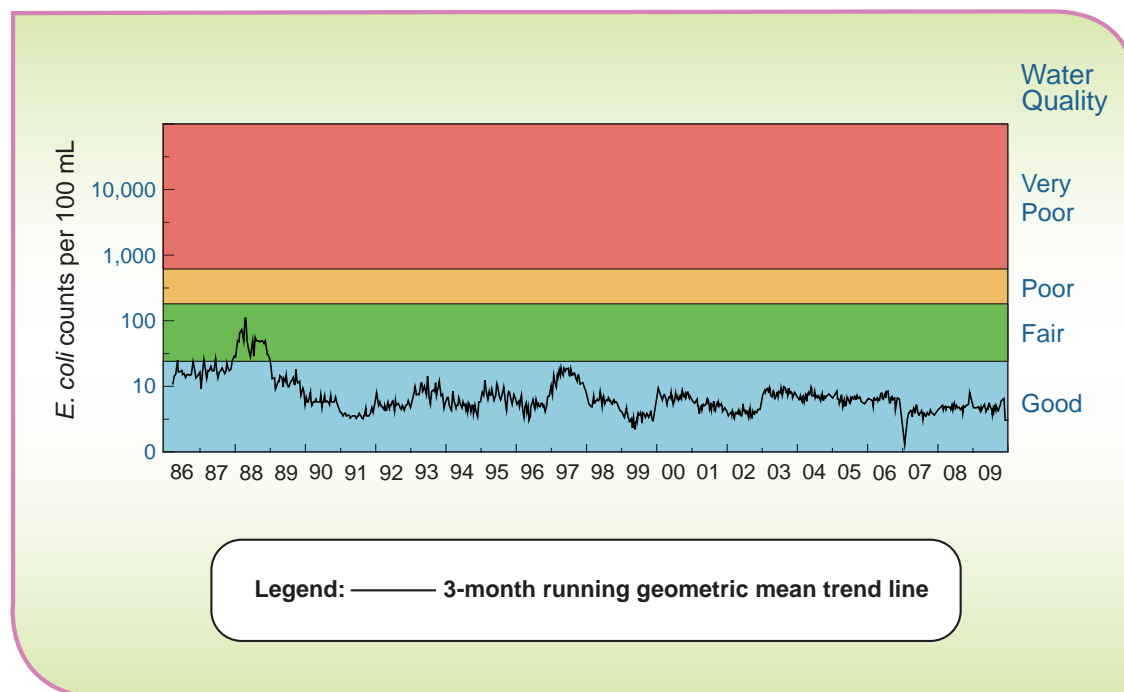


Long-term trend of beach water quality - Shek O Beach

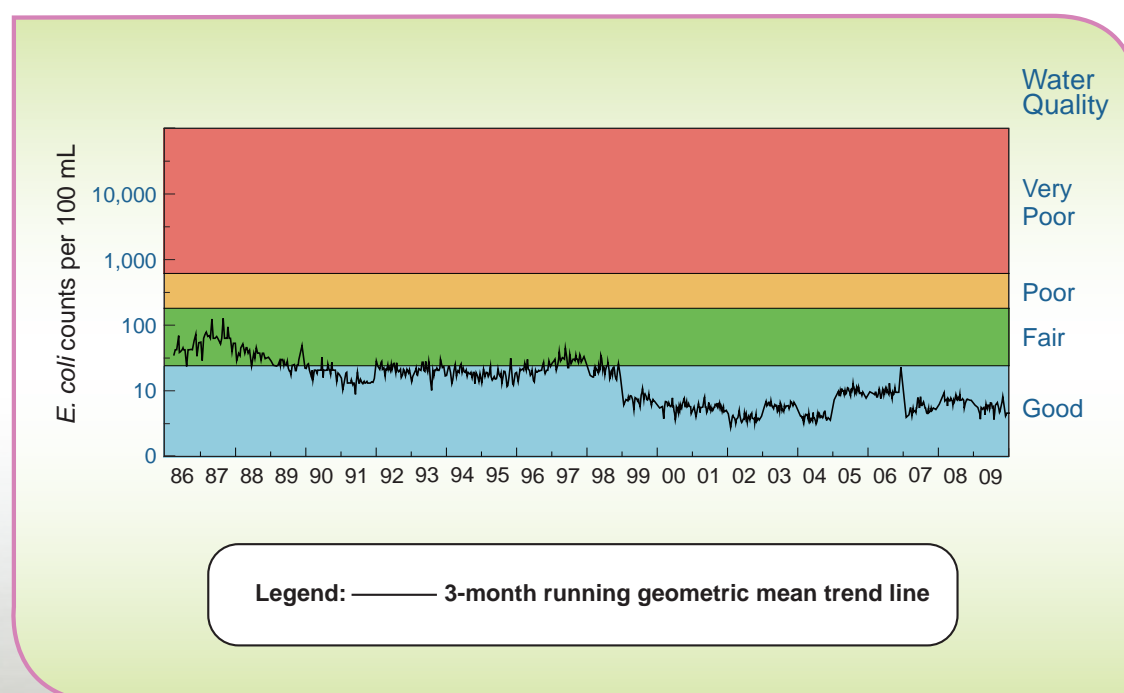


Beach Water Quality in Hong Kong 2009

Long-term trend of beach water quality - South Bay Beach

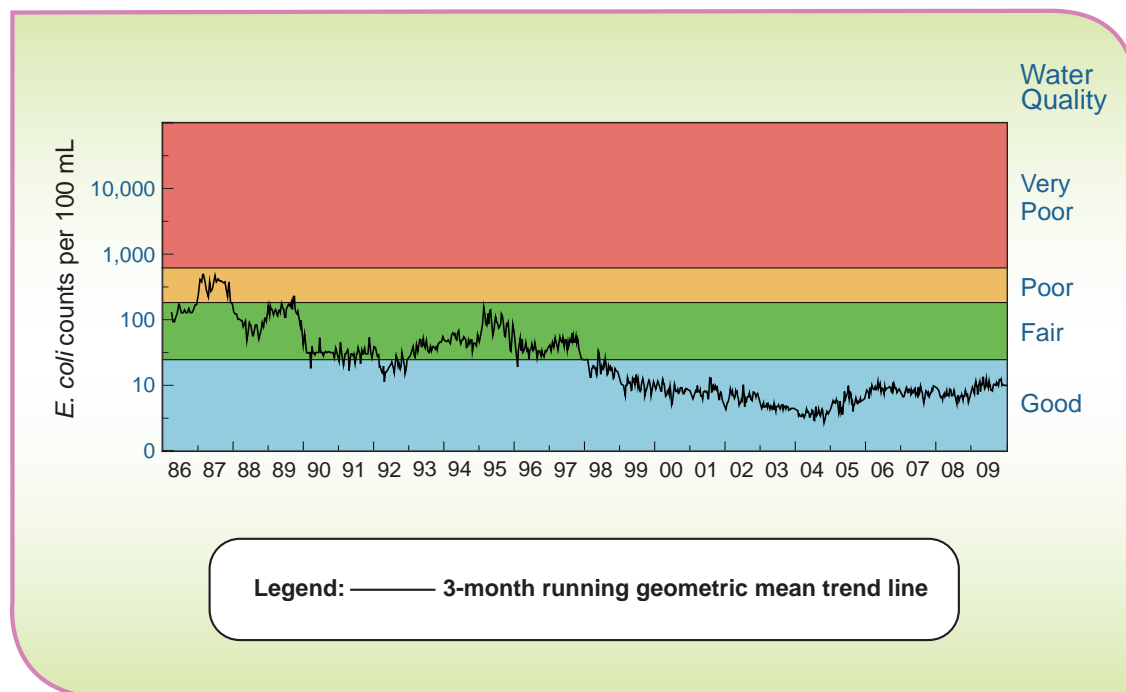


Long-term trend of beach water quality - St. Stephen's Beach

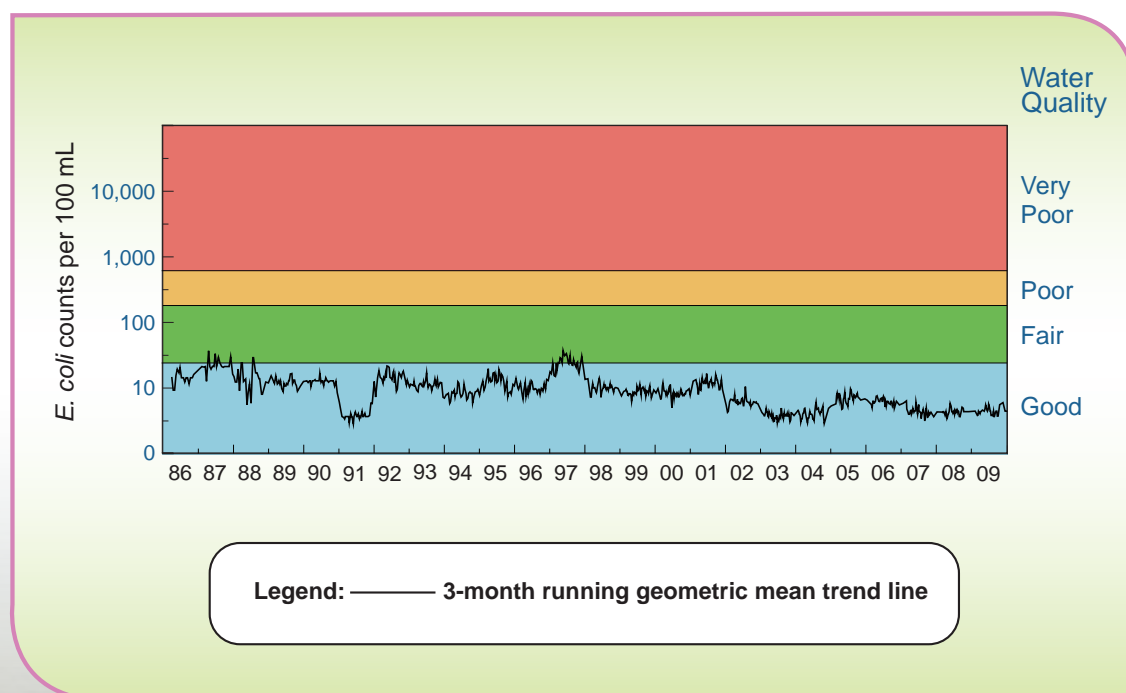


Beach Water Quality in Hong Kong 2009

Long-term trend of beach water quality - Stanley Main Beach



Long-term trend of beach water quality - Turtle Cove Beach

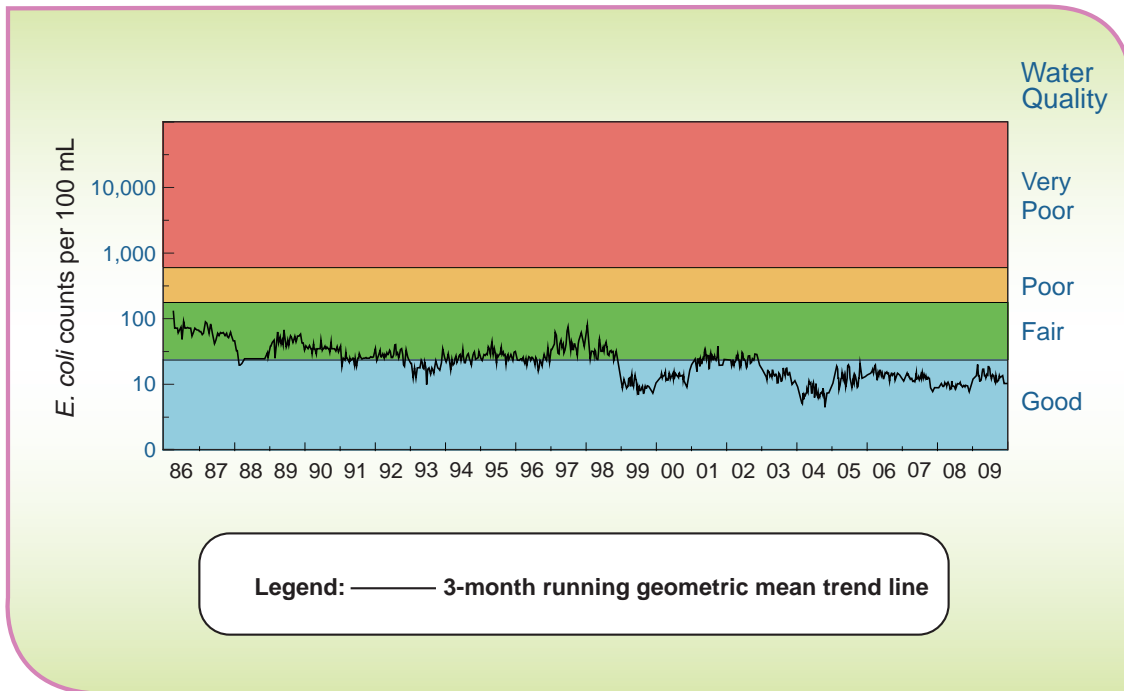


Beach Water Quality in Hong Kong 2009

- Sai Kung District

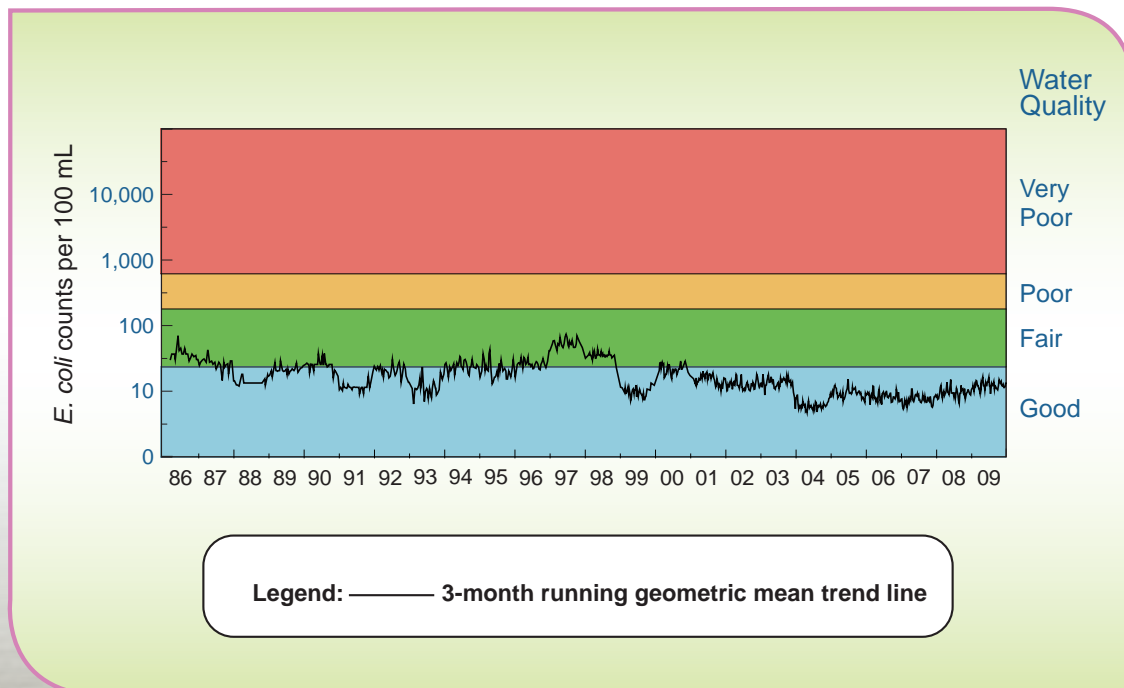
Long-term trend of beach water quality

- Clear Water Bay First Beach



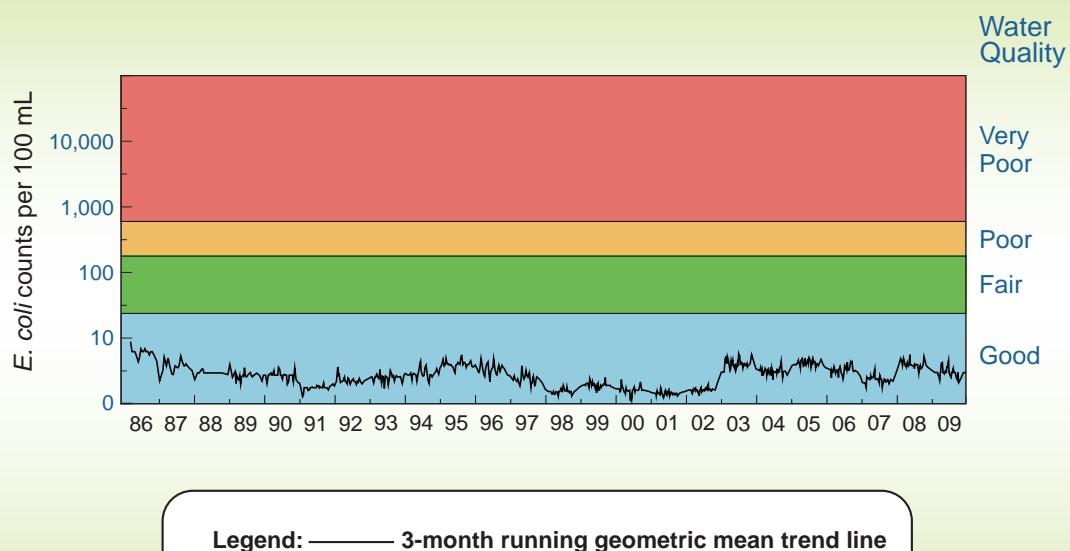
Long-term trend of beach water quality

- Clear Water Bay Second Beach

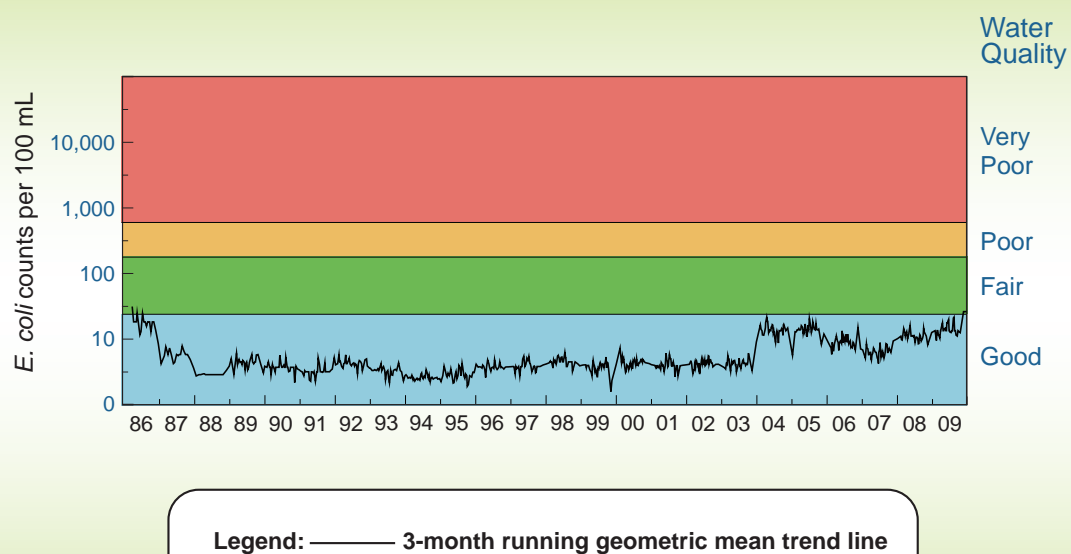


Beach Water Quality in Hong Kong 2009

Long-term trend of beach water quality - Hap Mun Bay Beach

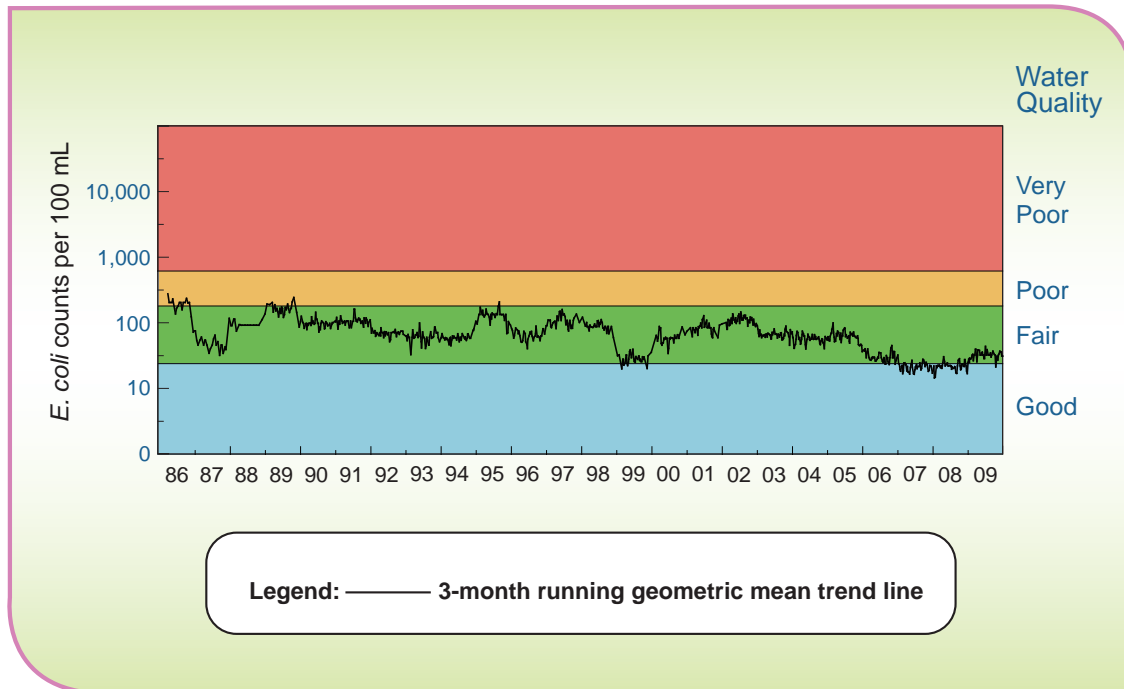


Long-term trend of beach water quality - Kiu Tsui Beach

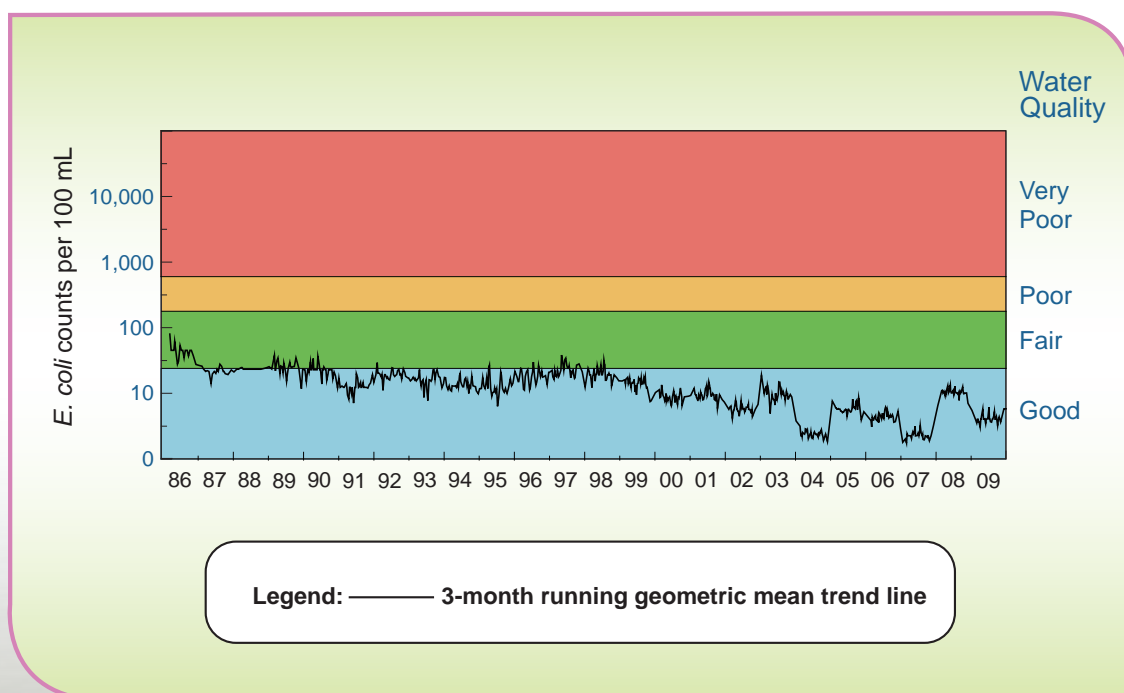


Beach Water Quality in Hong Kong 2009

Long-term trend of beach water quality - Silverstrand Beach



Long-term trend of beach water quality - Trio Beach

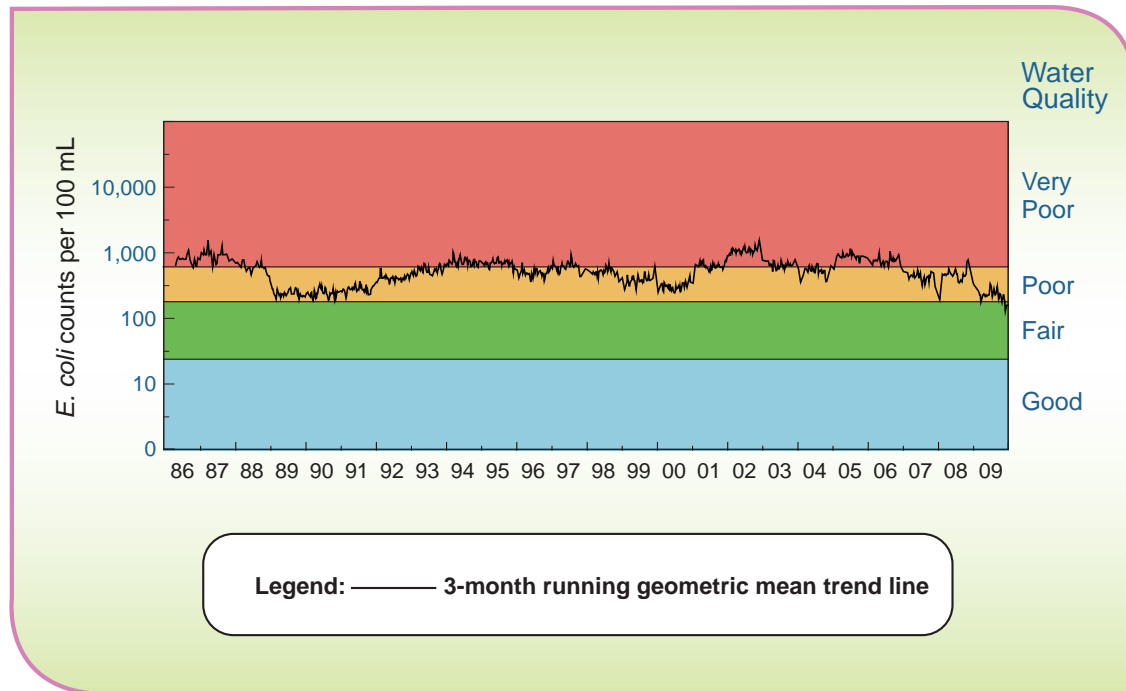


Beach Water Quality in Hong Kong 2009

- Tsuen Wan District

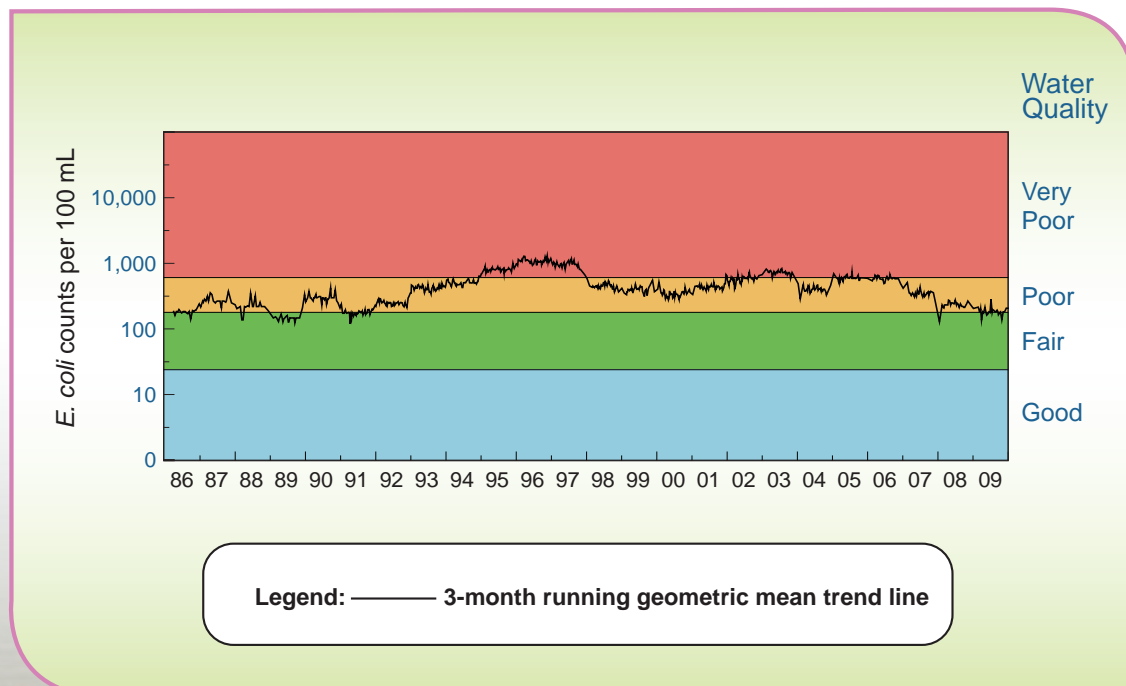
Long-term trend of beach water quality

- Anglers' Beach



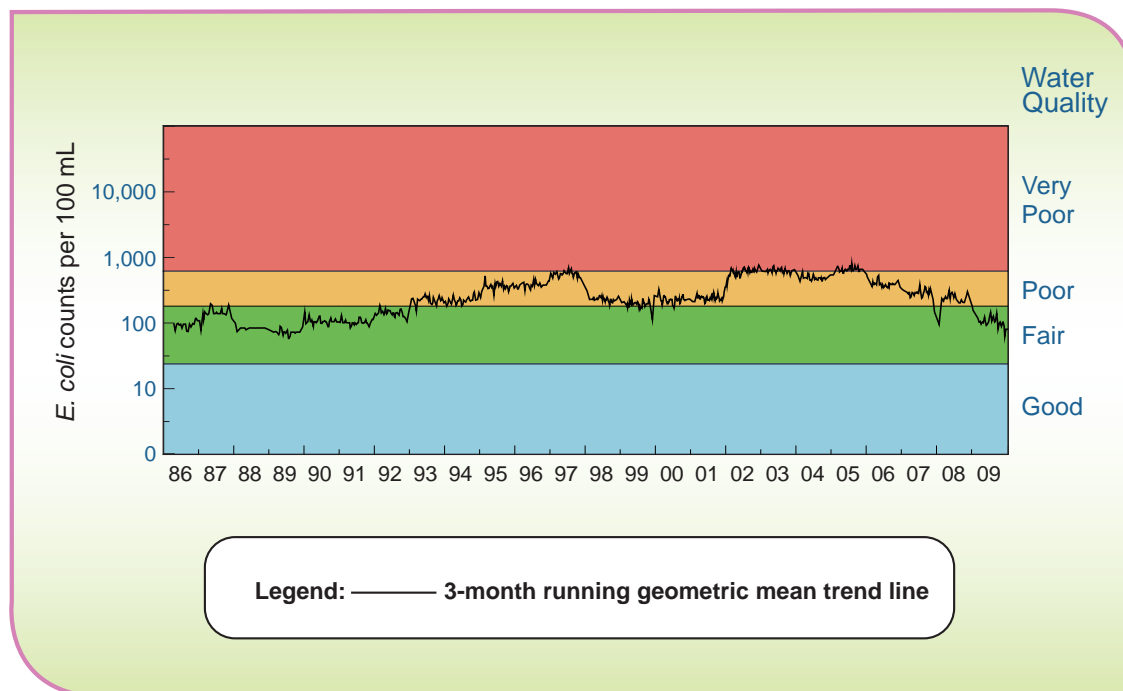
Long-term trend of beach water quality

- Approach Beach

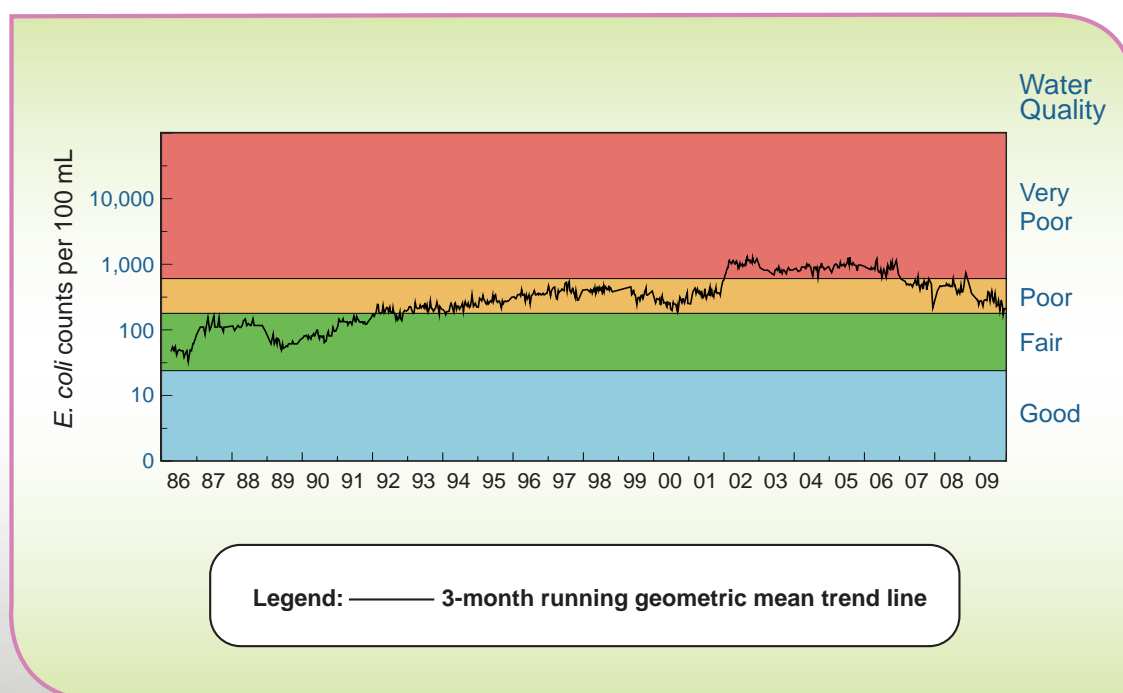


Beach Water Quality in Hong Kong 2009

Long-term trend of beach water quality - Casam Beach

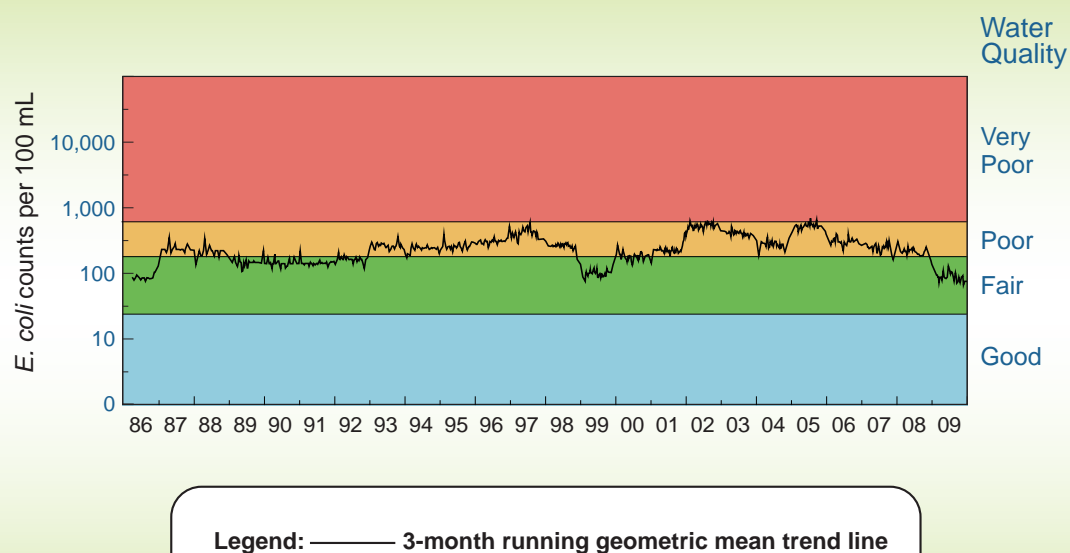


Long-term trend of beach water quality - Gemini Beaches

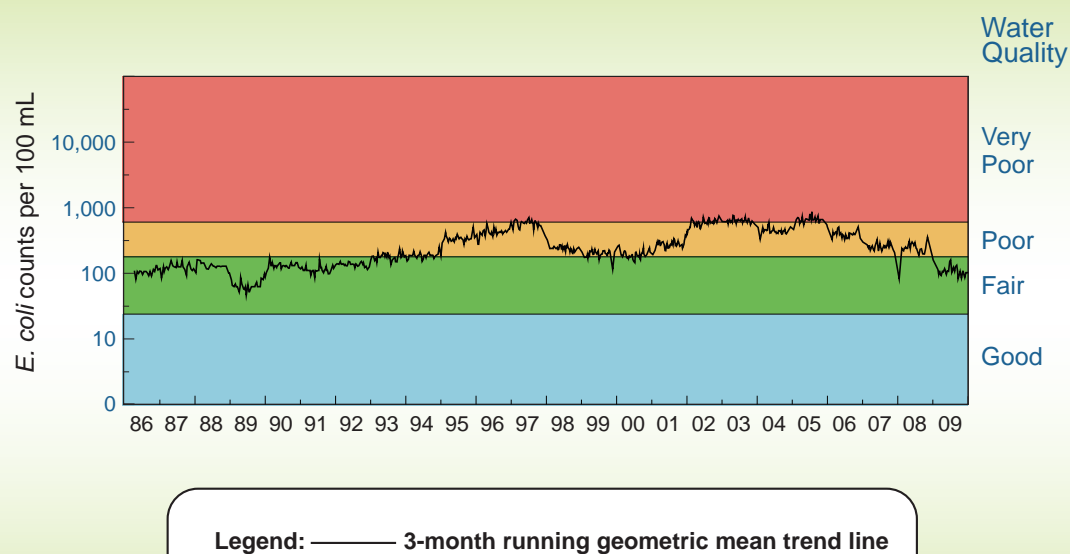


Beach Water Quality in Hong Kong 2009

Long-term trend of beach water quality - Hoi Mei Wan Beach

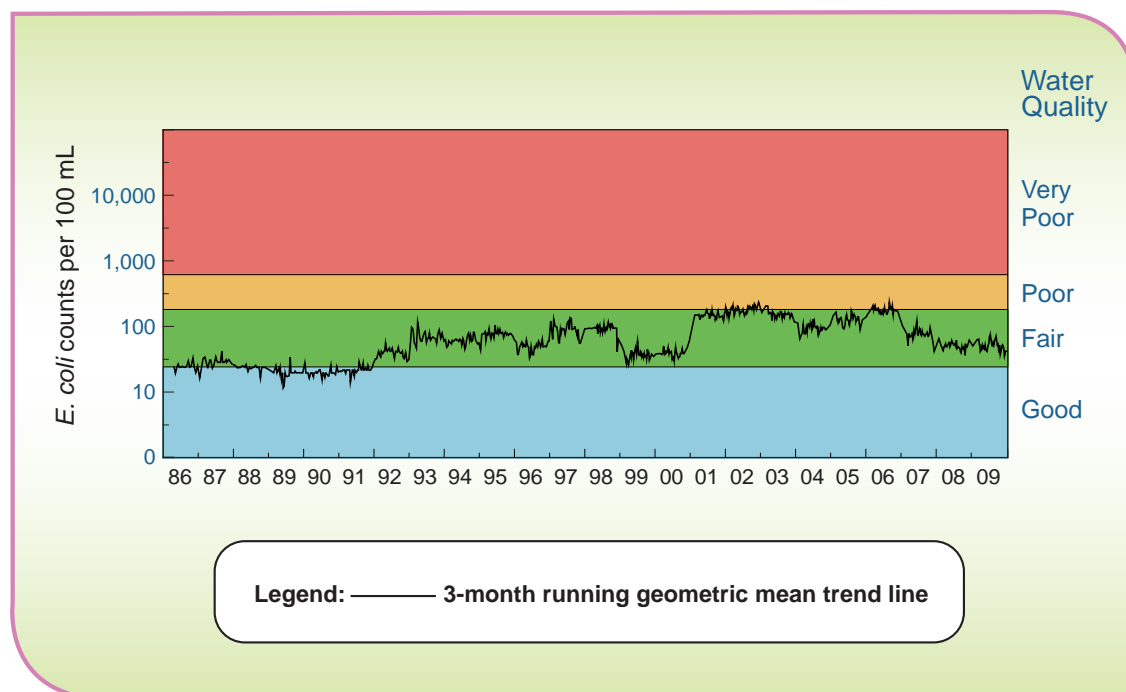


Long-term trend of beach water quality - Lido Beach

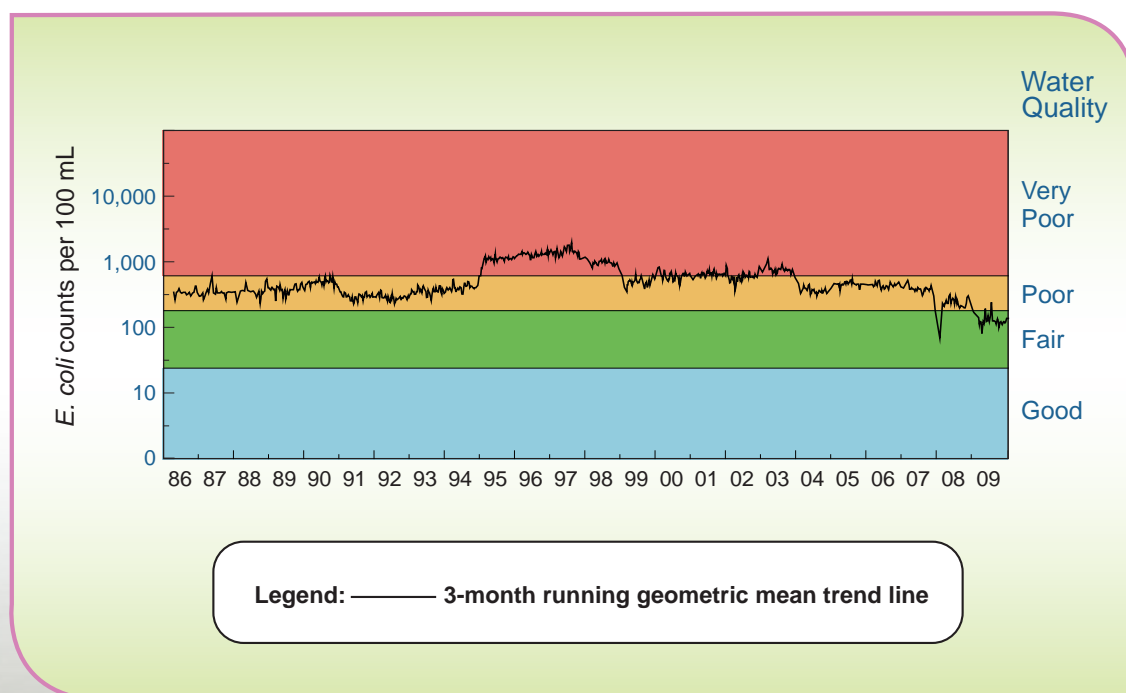


Beach Water Quality in Hong Kong 2009

Long-term trend of beach water quality - Ma Wan Tung Wan Beach



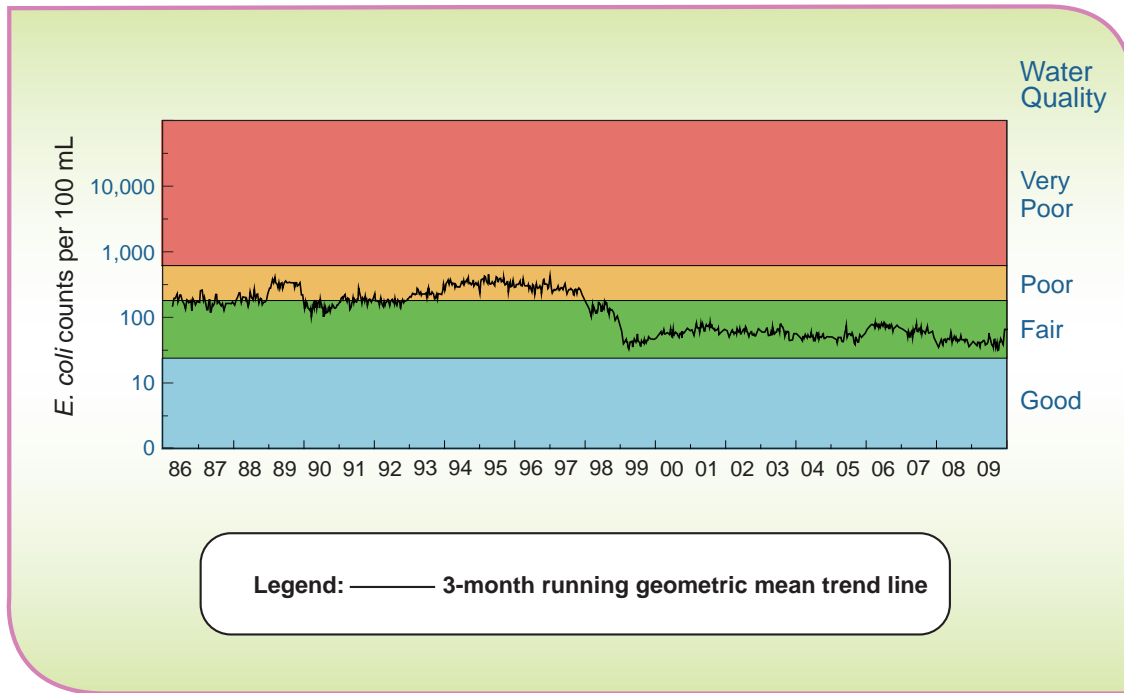
Long-term trend of beach water quality - Ting Kau Beach



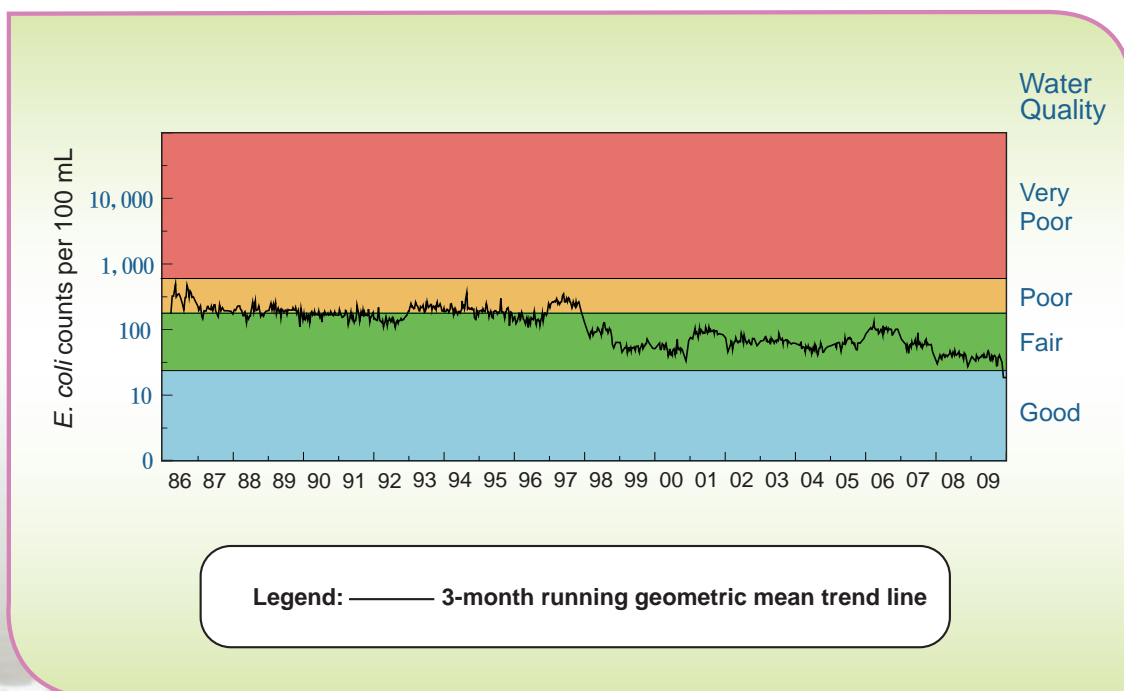
Beach Water Quality in Hong Kong 2009

- Tuen Mun District

Long-term trend of beach water quality - Butterfly Beach

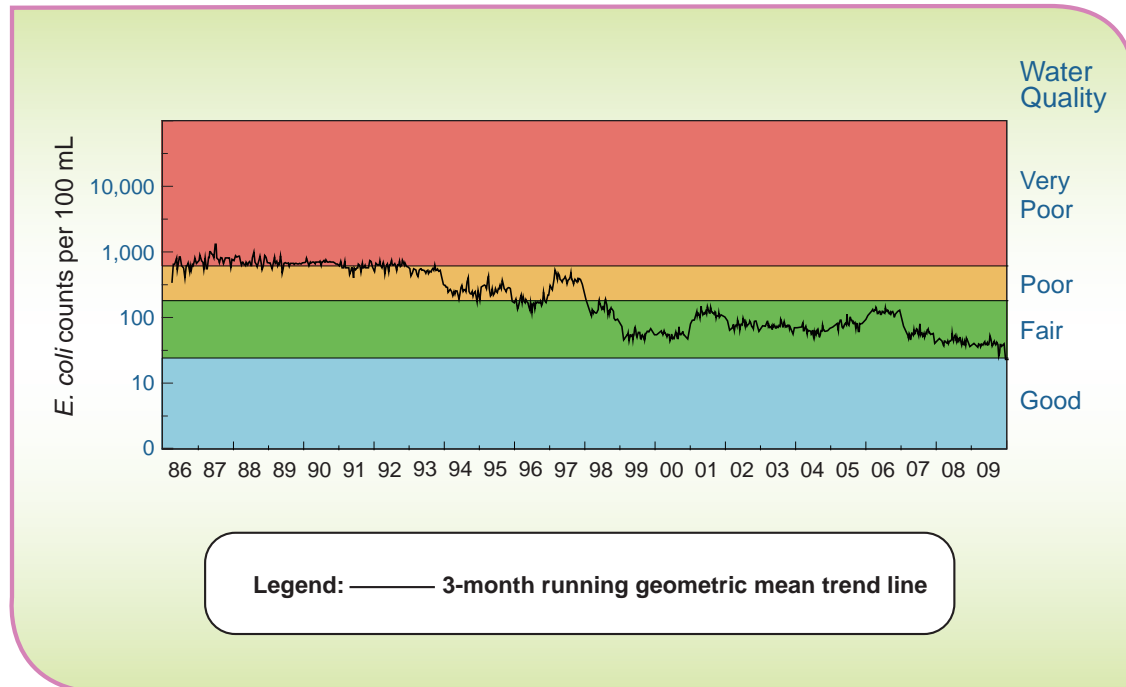


Long-term trend of beach water quality - Cafeteria New Beach

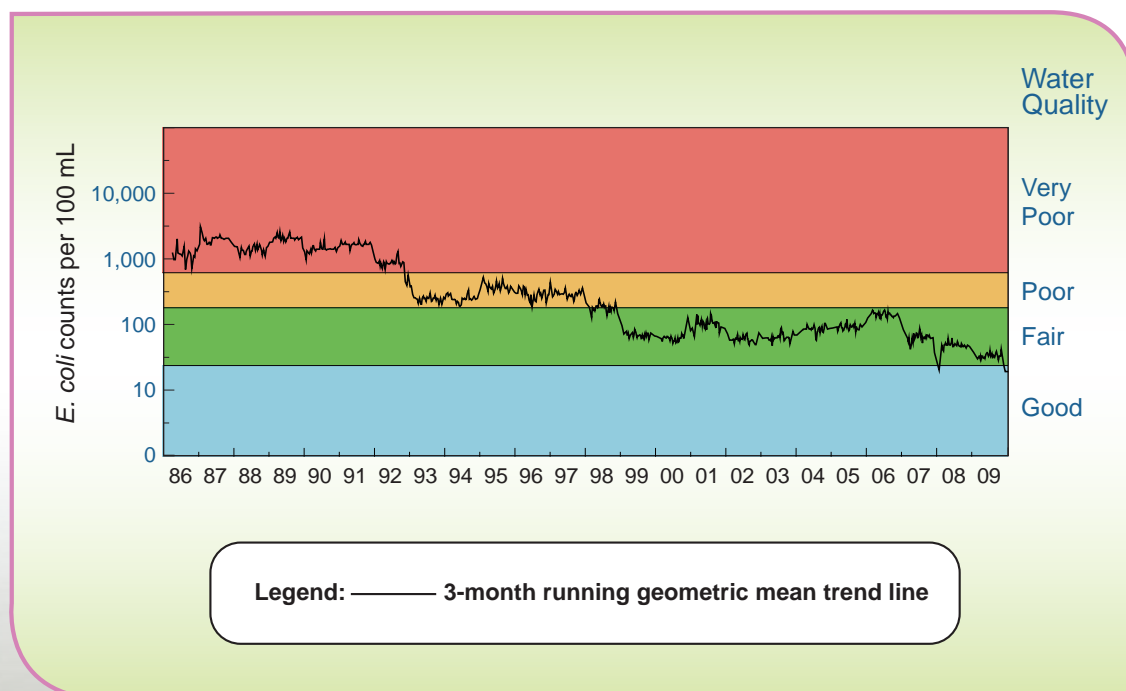


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Long-term trend of beach water quality - Cafeteria Old Beach

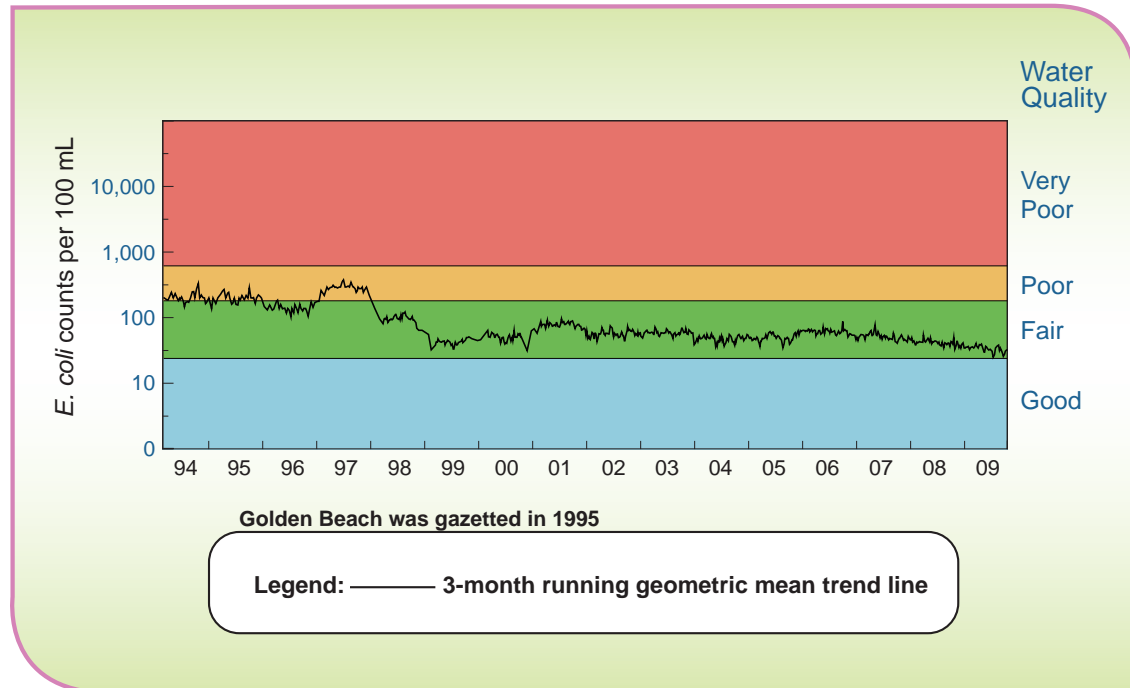


Long-term trend of beach water quality - Castle Peak Beach

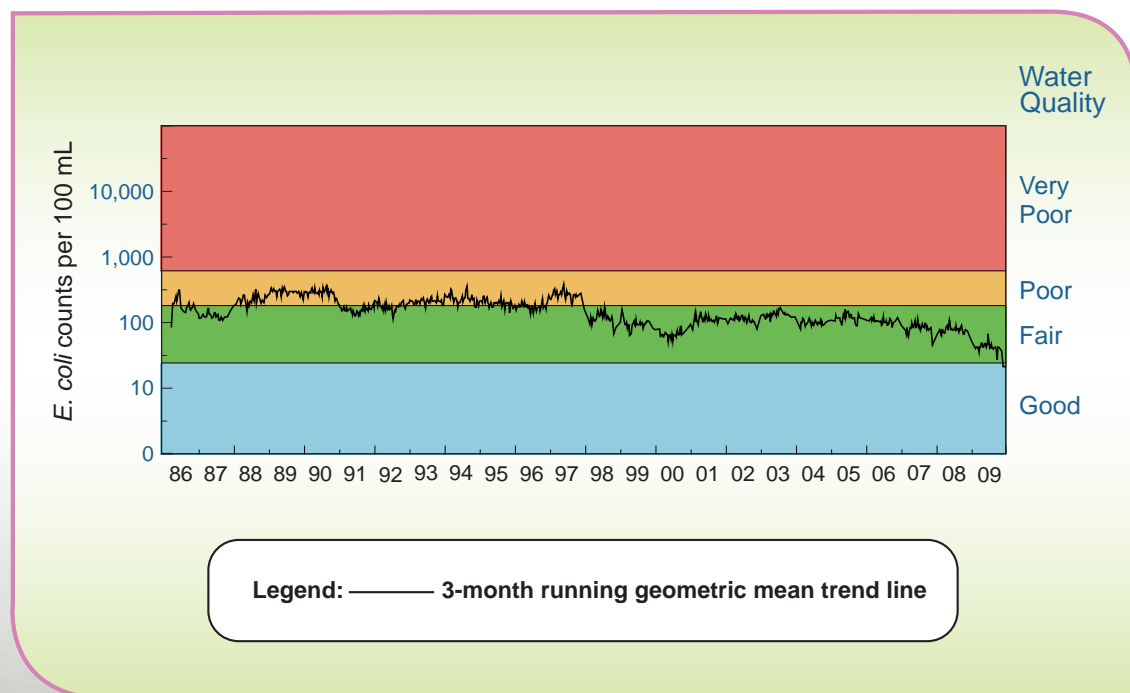


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Long-term trend of beach water quality - Golden Beach



Long-term trend of beach water quality - Kadoorie Beach

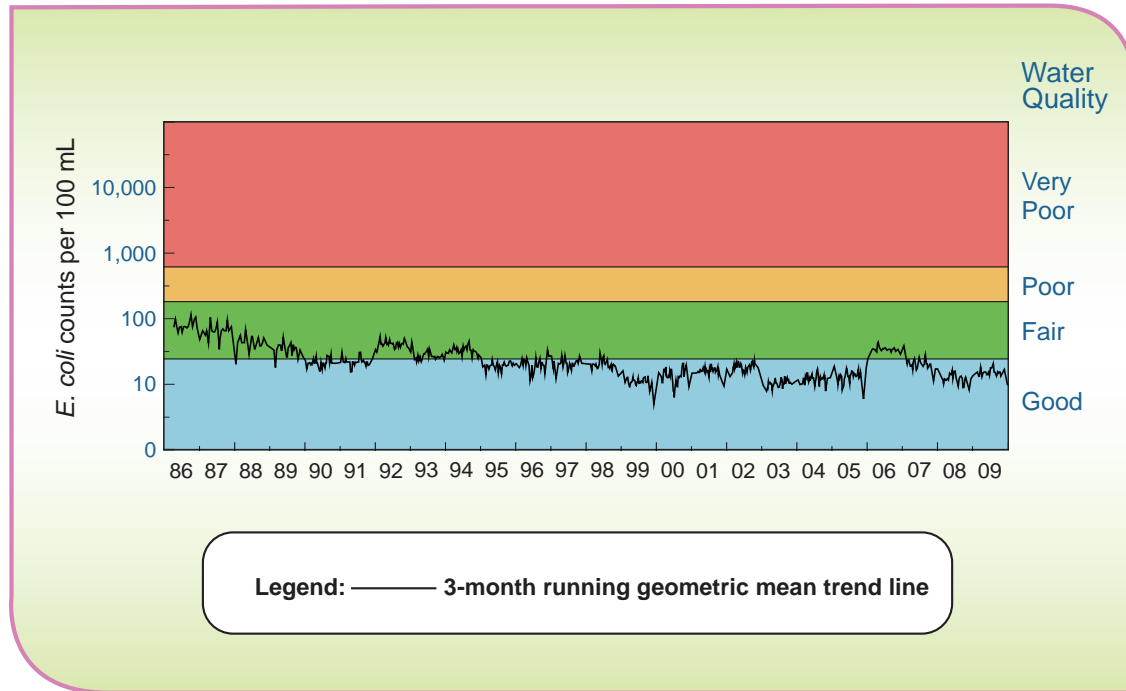


Beach Water Quality in Hong Kong 2009

- Outlying Islands

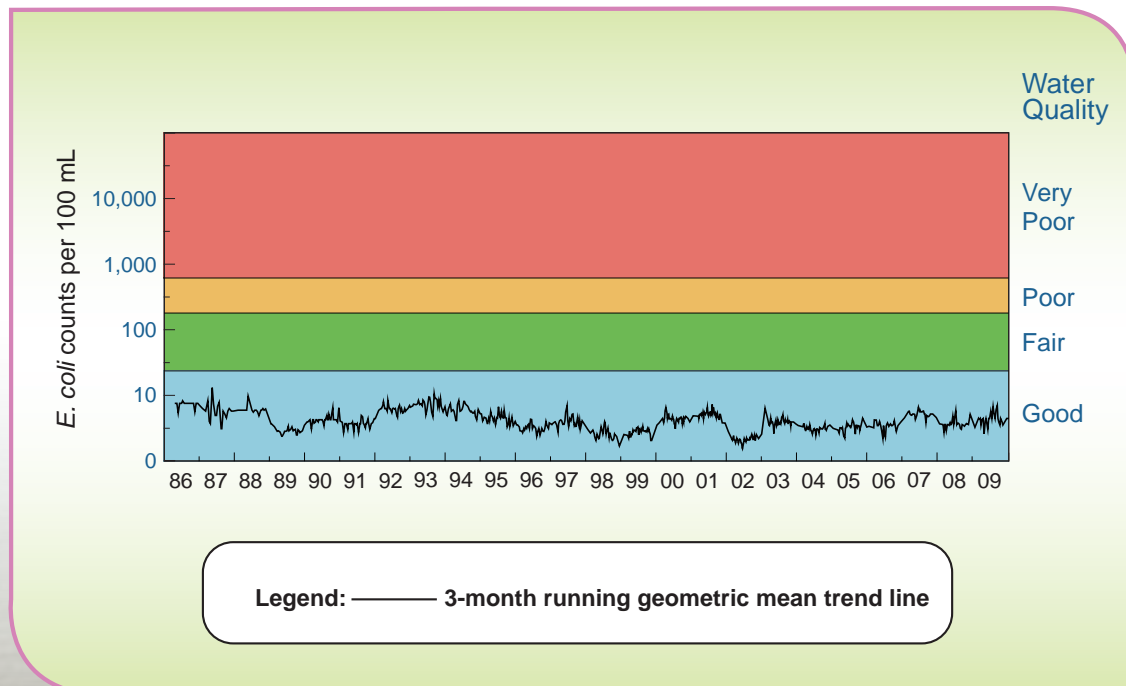
Long-term trend of beach water quality

- Cheung Chau Tung Wan Beach



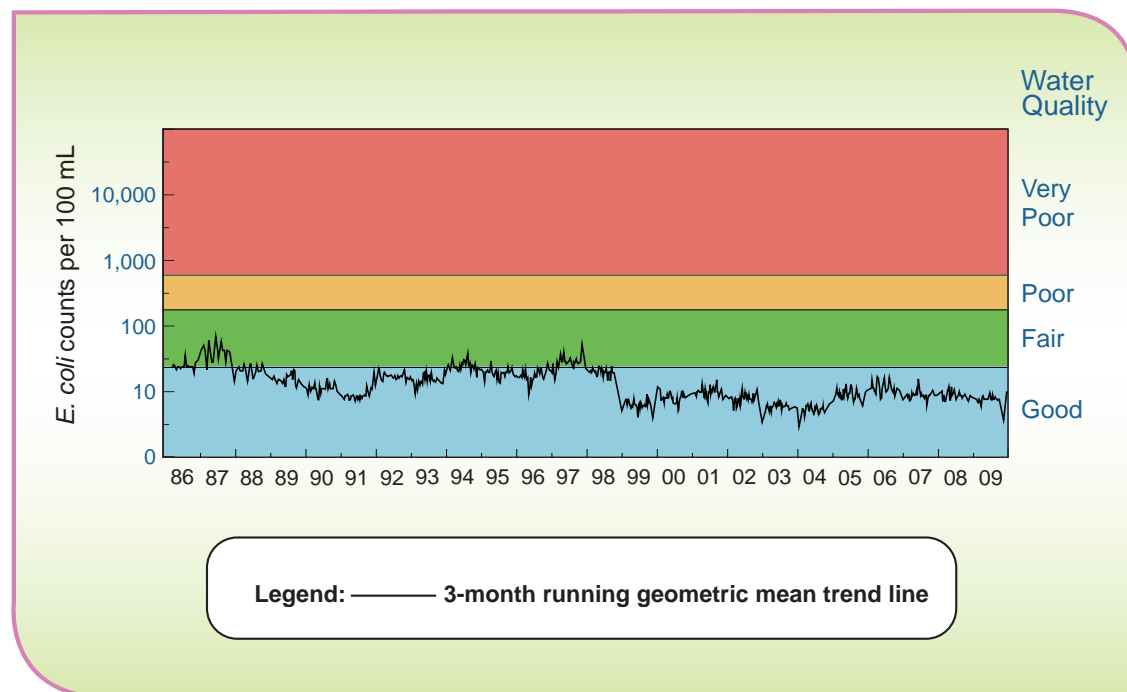
Long-term trend of beach water quality

- Hung Shing Yeh Beach

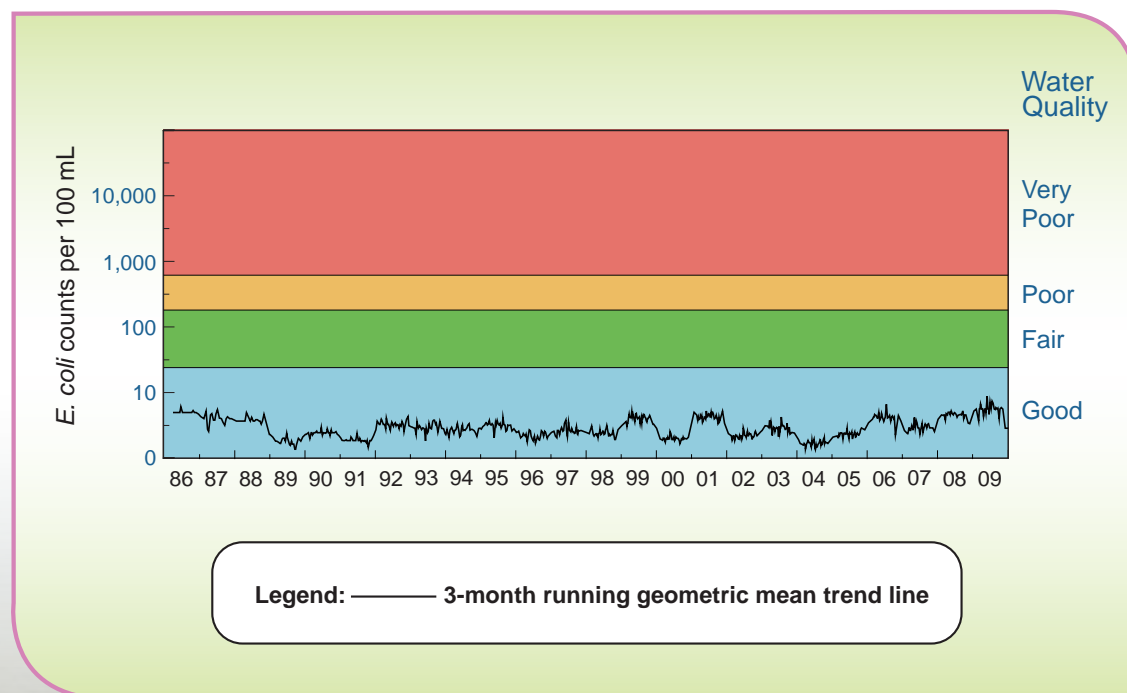


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Long-term trend of beach water quality - Kwun Yam Beach

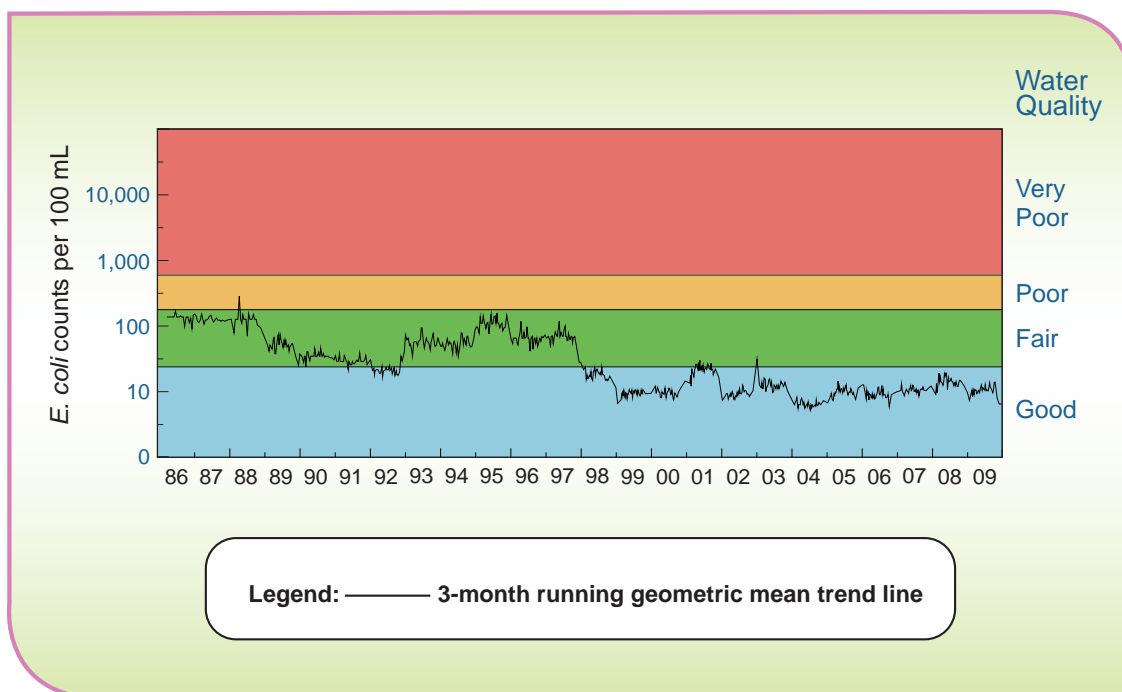


Long-term trend of beach water quality - Lo So Shing Beach

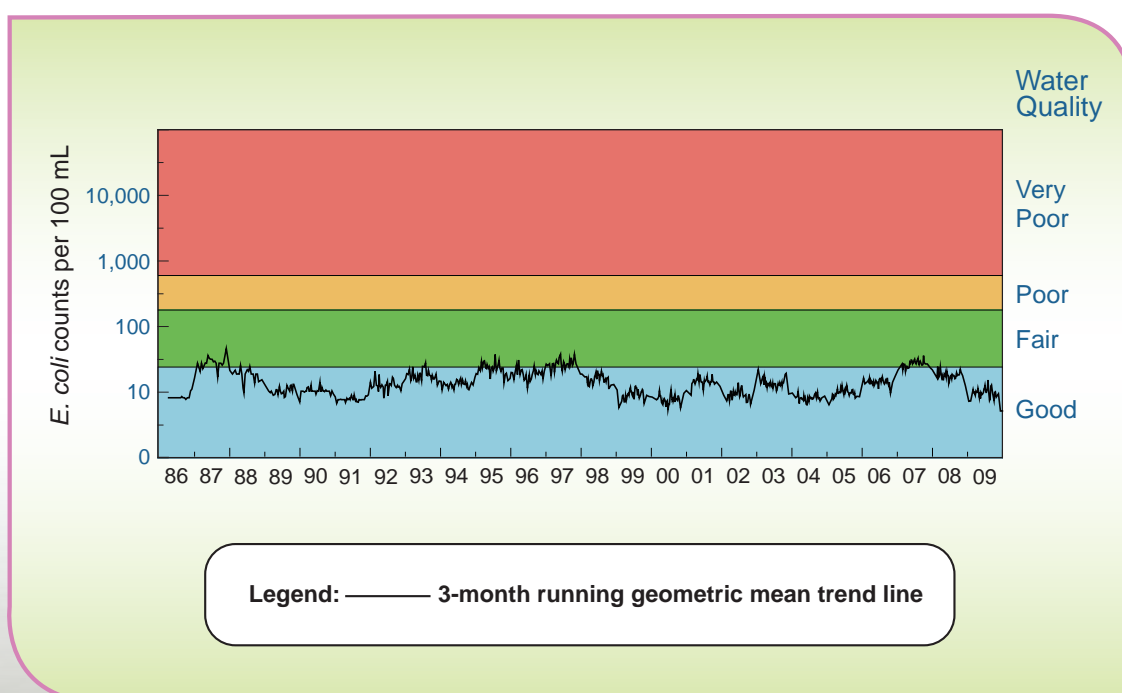


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Long-term trend of beach water quality - Lower Cheung Sha Beach

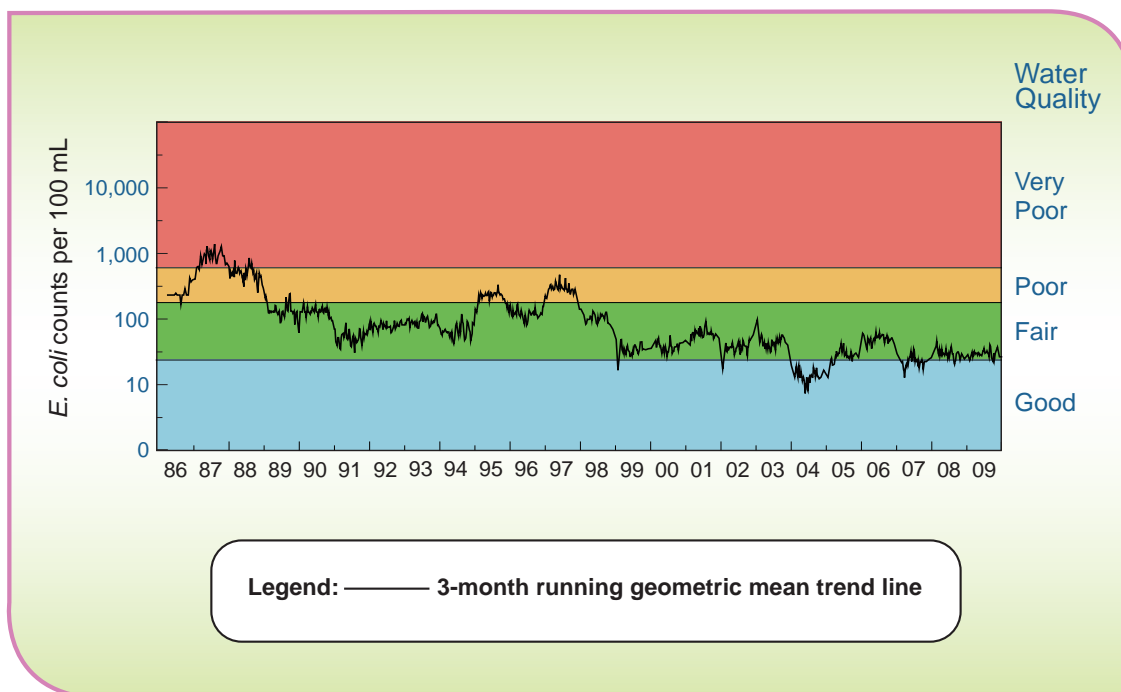


Long-term trend of beach water quality - Pui O Beach

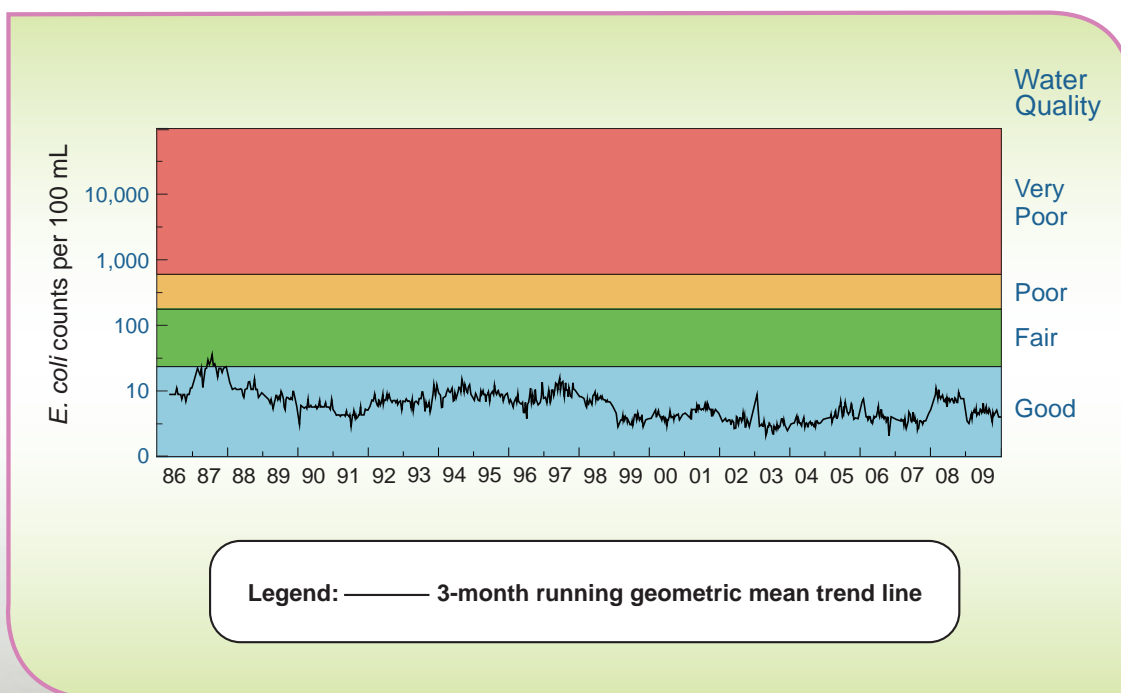


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Long-term trend of beach water quality - Silver Mine Bay Beach

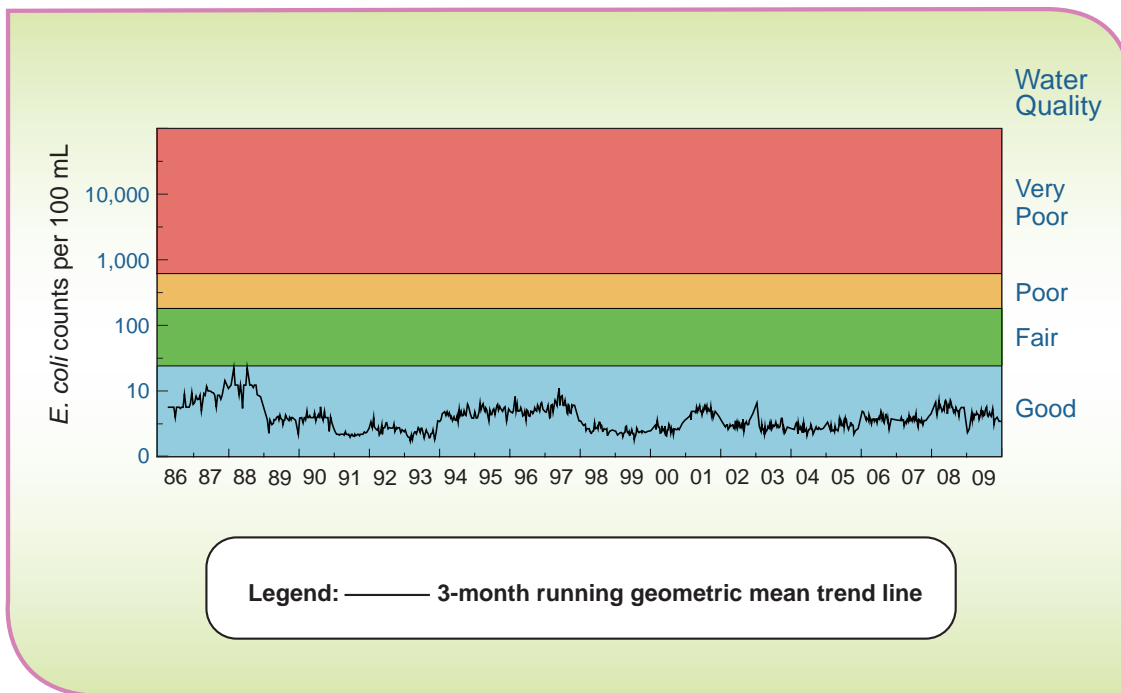


Long-term trend of beach water quality - Tong Fuk Beach



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Long-term trend of beach water quality - Upper Cheung Sha Beach





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