

# 香港泳灘水質 2019

## *Beach Water Quality in Hong Kong*

為更佳泳灘水質而努力 ● *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 bacteriological Water Quality Objective for bathing beaches*



▲ Hong Kong's picturesque coastline



## Introduction

Hong Kong is famed for its enchanting bays and beaches. Every year, millions of bathers visit the beaches to enjoy swimming and sunbathing. Having clean bathing water is of paramount importance to public health.

The Environmental Protection Department (EPD) has implemented a comprehensive Beach Water Quality Monitoring Programme. This report summarises the beach monitoring data and the corresponding beach grading during the 2019 bathing season as well as compliance with the bacteriological Water Quality Objective (WQO) for bathing waters.



▲ Vibrancy at the beaches in the summer



# Beach Water Quality in Hong Kong 2019

In 2019, the EPD monitored 41 gazetted beaches and two non-gazetted beaches in the territory. The beaches were monitored weekly by EPD staff during the bathing season from March to October through field observations and water sample collection for laboratory analyses of *Escherichia coli* (*E. coli*) as the bacteriological water quality indicator. *In-situ* measurements of dissolved oxygen, pH, salinity, temperature and turbidity of beach water were also taken for reference.



▲ Water sampling and field measurement at the beaches



▲ Measurement of *E. coli* level at EPD's environmental microbiology laboratory

Hong Kong adopts a dual rating system to assess beach water quality: annual ranking and weekly grading. Both are based on the *E. coli* level in the beach water to represent the risk of contracting

minor gastrointestinal and skin illnesses through swimming. The annual ranking reflects the overall water quality of the beach over the entire bathing season, while the weekly grading traces the recent change in water quality. Under the dual rating 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.



▲ Weekly beach water quality grading displayed on a noticeboard at Ma Wan Tung Wan Beach



## Annual Beach Ranking in 2019

All 41 gazetted beaches in Hong Kong complied with the bacteriological WQO in 2019. When compared to 2018, the number of beaches ranked as “Good” has decreased from 26 (or 63 %) to 21 (or 51 %), and the number of beaches ranked as “Fair” has increased from 15 (or 37%) to 20 (or 49%). No beach received “Poor” or “Very Poor” ranking.



▲ Hung Shing Yeh Beach maintaining “Good” annual ranking since 1986

The above changes in beach water rating in 2019 were normal and associated with the relatively unstable weather during the bathing season. The cumulative rainfall in this bathing season (2 309 mm) was 65% higher than the same period in 2018, and also 2% higher than the 30-year climatological normal during 1981-2010. Fluctuations of beach water quality could occur at some beaches after heavy rainstorms when pollutants from the beach hinterland were flushed to the nearshore water by the surface runoff. The phenomenon was particularly noticeable between March and July characterised by heavy rainstorms of short duration yet high frequency. Besides, the fewer total bright sunshine hours recorded in several months (the numbers in May and July were lower than the 30-year climatological normals of the particular months by 41% and 29% respectively) also slowed down the natural recovery of the beach water quality. Nevertheless, the overall *E. coli* levels in the bathing water were still generally within the normal range of fluctuation.

Similar to previous years, the beaches located in the Southern (Hong Kong Island South), Islands and Sai Kung Districts received better annual ranking.

Among the twelve beaches in the Southern District, nine beaches remained as “Good” and two as “Fair”, while Shek O Beach changed from “Good” to “Fair”. In the Islands District, Lower Cheung Sha Beach changed from “Good” to “Fair”, the same ranking as Silver Mine Bay Beach, and the remaining seven beaches continued to receive a “Good” ranking. In the Sai Kung District, except a change in ranking from “Good” to “Fair” at Silverstrand Beach, all other five beaches remained as “Good”.

All eight beaches in the Tsuen Wan District and all six beaches in the Tuen Mun District were ranked as “Fair”.



▲ St. Stephen's Beach with very stable water quality

Seven beaches along Castle Peak Road had once been closed before 2010 due to poor water quality. Since 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, the water quality of these seven beaches has improved and met the bacteriological WQO for bathing waters since then. This has led to the gradual re-opening of all these beaches during 2011 – 2014.



▲ The beaches in the Tsuen Wan District benefited by the Harbour Area Treatment Scheme and resuming stable water quality

In 2019, EPD also monitored two non-gazetted beaches: Discovery Bay (a popular beach in Lantau Island) and New Kiu Tsui (a sandy beach adjacent to Kiu Tsui Beach in Sai Kung). Both beaches received a “Good” ranking. Monitoring at Lung Mei in Tai Po has been suspended since March 2019 due to the ongoing construction works under Lung Mei Beach Project.



## Weekly Beach Grading in 2019

To provide the public with the latest beach water quality, the EPD issues weekly grading of beaches in their opening periods through different means including the press releases, EPD's website, the beach enquiry hotline, GeoInfo Map of the GovHK website and noticeboards at the beaches.

In 2019, most of the beaches in the Southern District maintained very good water quality and largely received “Good” or “Fair” grading, with the exception of Big Wave Bay Beach which experienced some fluctuations in June and July due to discharge of likely contaminated stream water to the bathing zone as a result of a collapse of the bank of a nearby stream during inclement weather. The beach water quality returned to normal level in August after completion of stream restoration works by the Drainage Services Department. Chung Hom Kok Beach, Deep Water Bay Beach and South Bay Beach each recorded “Very Poor” grading after heavy rain once in the year.

Beaches in the Islands District had decent water quality, and on average received “Good” grading for 76% of time during the bathing season, which was the best performance among all districts. In particular, three beaches, namely Hung Shing Yeh Beach, Lo So Shung Beach and Tong



▲ Lower Cheung Sha Beach stretching out in the gentle waves

Fuk Beach, received “Good” grading for the entire bathing season for two consecutive years. On the other hand, Lower Cheung Sha Beach changed to “Very Poor” once after heavy downpours, while Silver Mine Bay Beach received “Very Poor” grading three times between March and July associated with rain events.



Beaches in the Sai Kung District saw another year of fine water quality. Among them, Hap Mun Bay Beach achieved “Good” grading throughout the bathing season for six consecutive years. Clear Water Bay First Beach, Clear Water Bay Second Beach and Kiu Tsui Beach changed to “Very Poor” one to three times, largely due to antecedent rainfall.



▲ A quiet beach for leisure swimming at Kadoorie Beach

Beaches in the Tuen Mun District had stable water quality, and largely received “Fair” grading in this bathing season. Cafeteria New Beach, Cafeteria Old Beach and Castle Peak Beach each received “Very Poor” grading once but recovered on the following day.

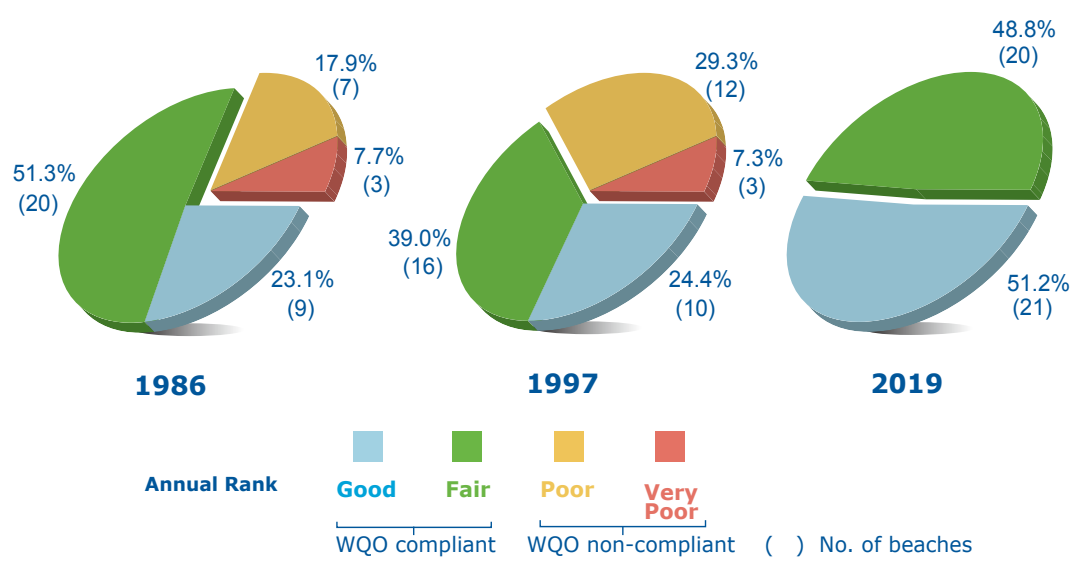
Under the relatively unstable weather in 2019, all the Tsuen Wan beaches experienced one or two occasions of “Very Poor” grading after rainstorms, but their overall grading status had not markedly changed. Casam Beach and Lido Beach even achieved “Good” grading frequently towards the end of the bathing season.



## Water Quality Trend

All of the gazetted beaches in Hong Kong have been in full compliance with the bacteriological WQO for 10 consecutive years. The bacteriological WQO compliance rate decreased from 74% in 1986 (29 of 39 beaches) to 63% (26 of 41 beaches) in 1997, and then progressively increased to 100% in 2010 and the record has been maintained since then.

### Comparison of annual beach ranking of gazetted beaches in 1986, 1997 and 2019



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

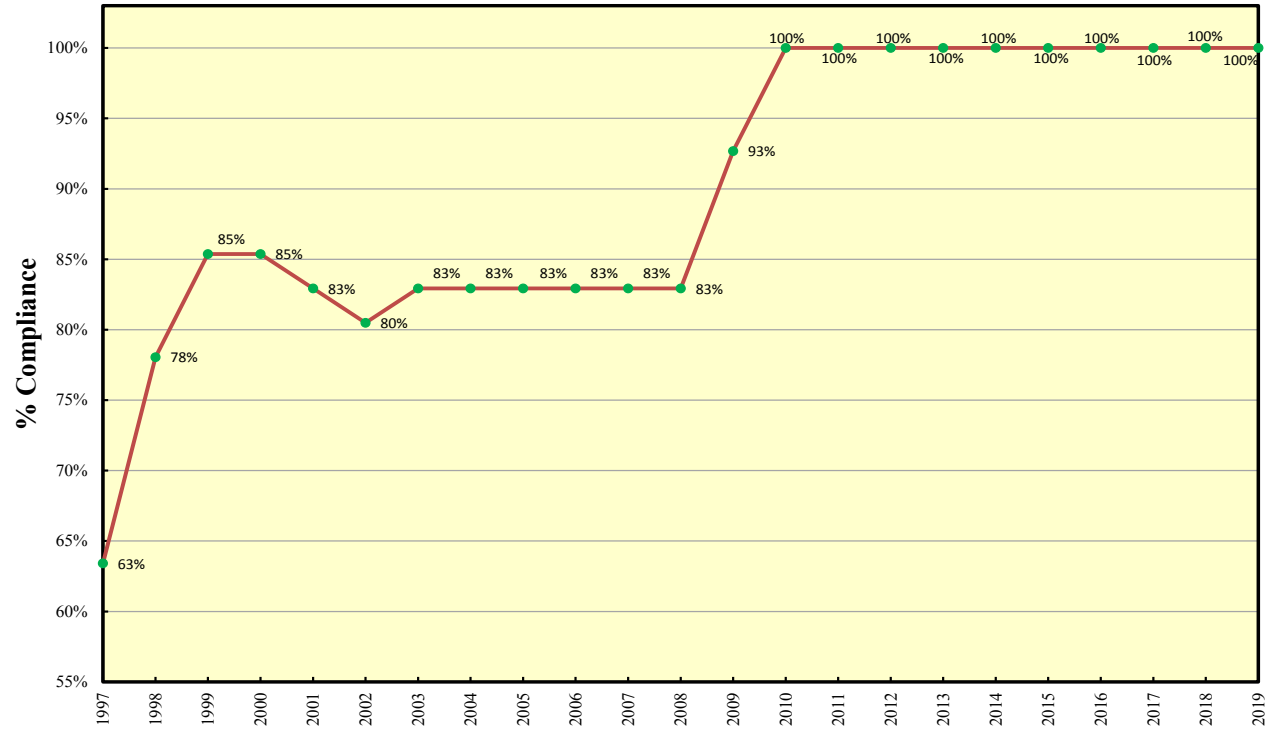
Looking back to the 1980s, many beaches were closed (e.g. Cafeteria Old Beach, Castle Peak Beach and Silver Mine Bay Beach) or on the verge of being closed (e.g. Middle Bay Beach and Repulse Bay Beach) due to poor water quality. There was a further drop in compliance rate in the mid-1990s due to population growth particularly in the new town areas. In the last two decades, there has been progressive improvement in beach water quality attributable to various proactive pollution abatement measures, including enforcement of environmental legislation, extension of the sewerage network and 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.



Major improvement measures for the beaches since the implementation of beach water quality monitoring programme in 1986	
1986 – 1990	Beaches with Water Quality Improvement
<ul style="list-style-type: none"> <li>Implementation of the Livestock Waste Control Scheme under the Waste Disposal (Livestock Waste) Regulation.</li> </ul>	Most beaches, particularly Silver Mine Bay Beach
<ul style="list-style-type: none"> <li>Declaration of the Southern Water Control Zone (WCZ) under the Water Pollution Control Ordinance (WPCO) for legislative enforcement.</li> </ul>	Southern beaches
<ul style="list-style-type: none"> <li>Interception and diversion of polluted storm drains at beaches in Southern District.</li> </ul>	Southern beaches
1991 – 1995	
<ul style="list-style-type: none"> <li>Implementation of chemical waste control.</li> </ul>	All beaches
<ul style="list-style-type: none"> <li>Declaration of the North Western WCZ under the WPCO for legislative enforcement.</li> </ul>	Tuen Mun beaches
<ul style="list-style-type: none"> <li>Diversion of polluted storm water drains away from Castle Peak Beach.</li> </ul>	Castle Peak Beach
<ul style="list-style-type: none"> <li>Provision of public sewers for So Kwun Wat and Sam Shing Estate.</li> </ul>	Tuen Mun Beaches
<ul style="list-style-type: none"> <li>Commissioning of Stanley Sewage Treatment Works (STW).</li> </ul>	Stanley Main Beach
1996 – 2000	
<ul style="list-style-type: none"> <li>Full implementation of the WPCO in all WCZs.</li> </ul>	All beaches
<ul style="list-style-type: none"> <li>Commissioning of the Shek O Sewage Screening Plant and diversion of polluted storm water drains at Shek O Village .</li> </ul>	Shek O Beach
<ul style="list-style-type: none"> <li>Completion of all major works under the Southern Sewerage Master Plan.</li> </ul>	Southern beaches
<ul style="list-style-type: none"> <li>Commissioning of the new 2 km long Pillar Point sewage submarine outfall.</li> </ul>	Tuen Mun beaches
2001 – 2005	
<ul style="list-style-type: none"> <li>Completion of Harbour Area Treatment Scheme Stage 1.</li> </ul>	Big Wave Bay, Shek O and Rocky Bay Beaches
<ul style="list-style-type: none"> <li>Provision of public sewers in the Silverstrand area.</li> </ul>	Silverstrand Beach
<ul style="list-style-type: none"> <li>Full operation of the Sham Tseng STW.</li> </ul>	Beaches along the Tsuen Wan coast
2006 – 2019	
<ul style="list-style-type: none"> <li>Commissioning of the Advance Disinfection Facilities at the Stonecutters Island STW.</li> </ul>	All Tsuen Wan beaches
<ul style="list-style-type: none"> <li>Extension of the public sewerage network to the beach hinterland along Castle Peak Road.</li> </ul>	Beaches along the Tsuen Wan coast
<ul style="list-style-type: none"> <li>Full scale commissioning of all facilities of the Harbour Area Treatment Scheme (HATS) Stage 2A.</li> </ul>	Beaches along the Tsuen Wan coast

All of the gazetted beaches in Hong Kong have steadily met the required health-based standard for swimming. The EPD will continue to closely monitor the beach water quality to support water quality management policy and as reference for beach users.

**Compliance rate with bacteriological WQO at gazetted beaches  
during 1997 - 2019**





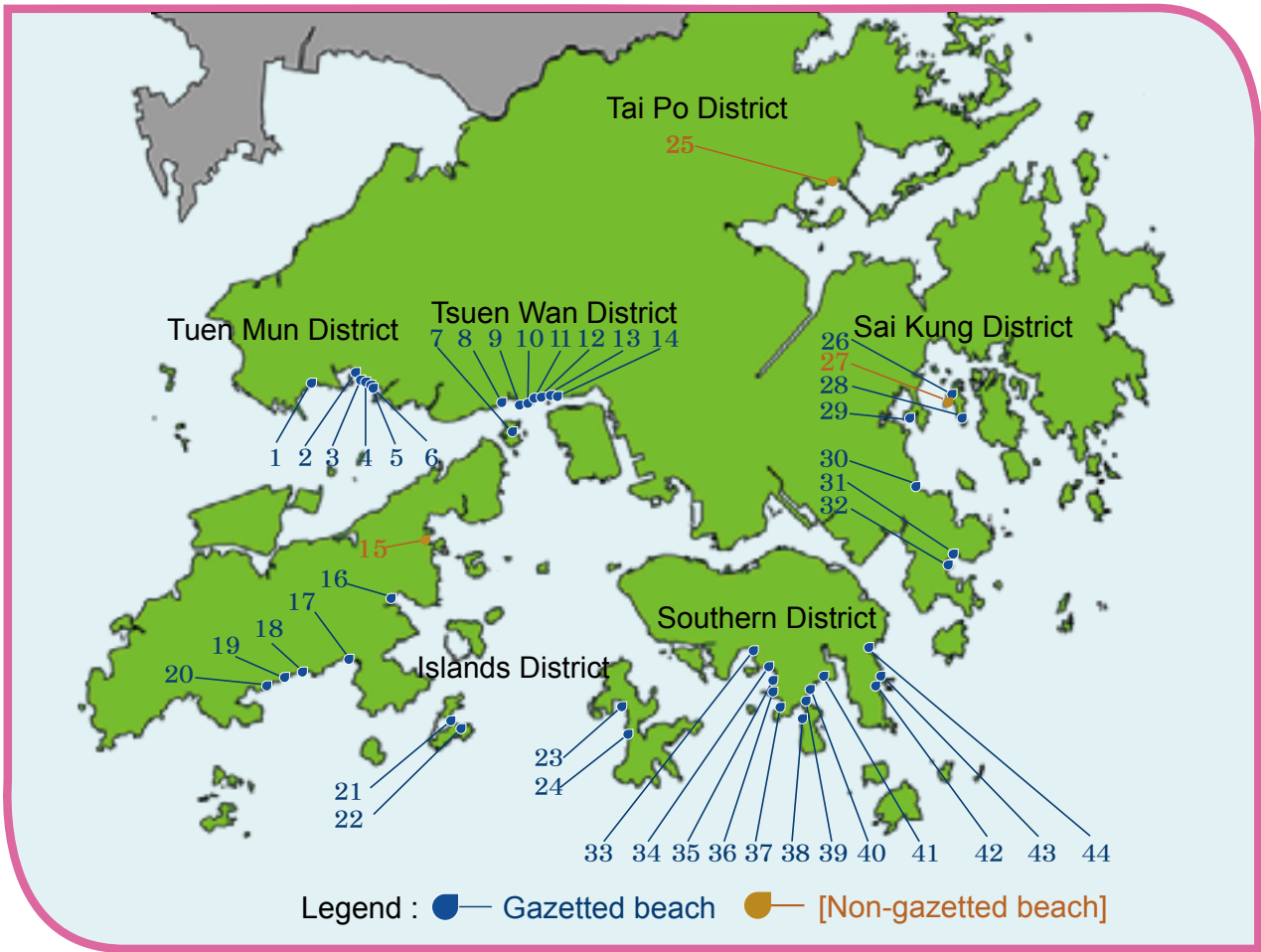
Water quality trend lines of all gazetted beaches over the last 34 years are provided in this report. More in-depth background and details of the beach monitoring programme are available at the beach water quality thematic website (<https://www.epd.gov.hk/epd/beach>), which also provides access to the annual beach water quality reports and data published since 2000.



▲ Fun activities at beach



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

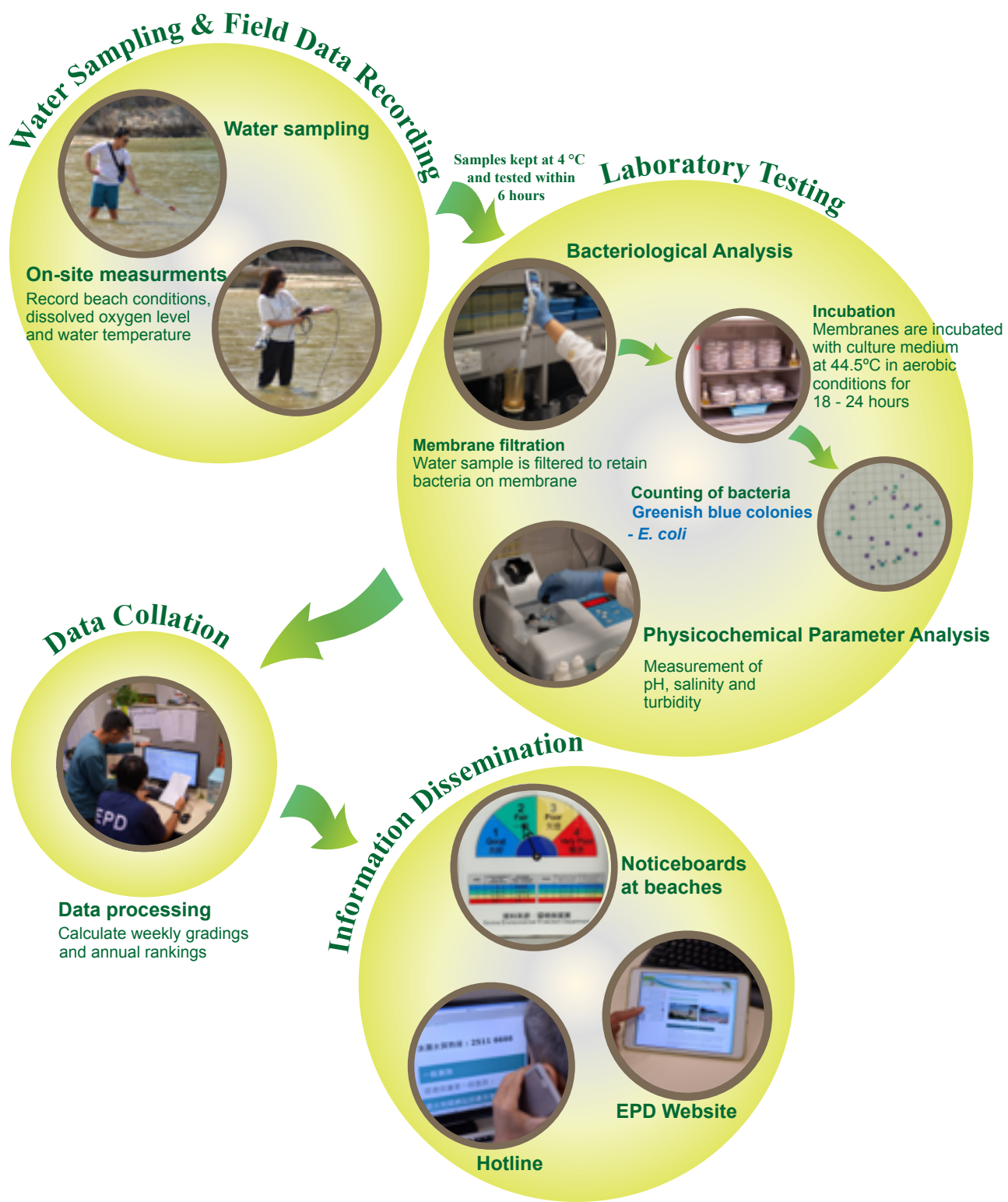


## Beach monitoring frequency

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

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

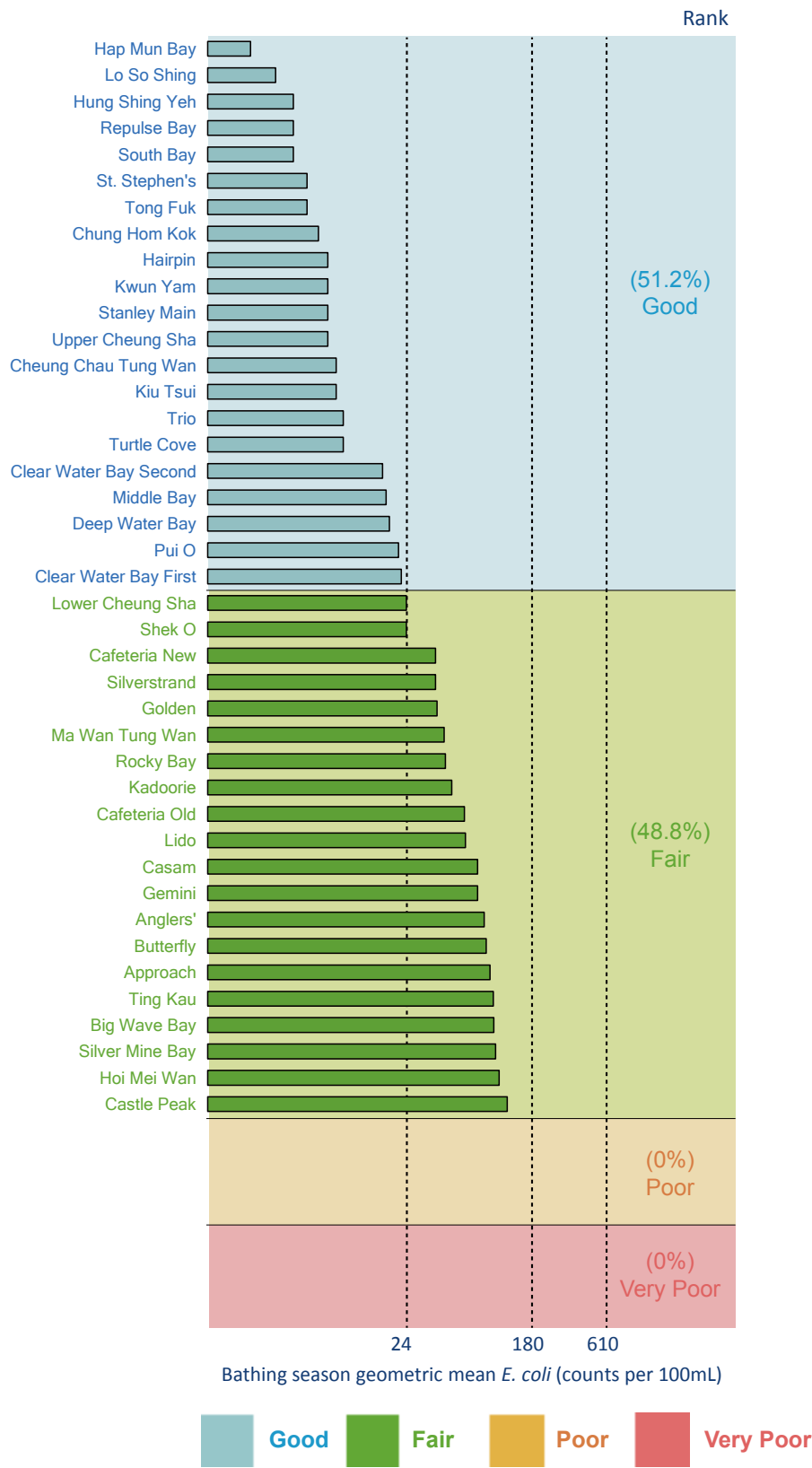
## Hong Kong's weekly beach grading system

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

2019 Annual ranking and bathing season geometric mean *E. coli* levels of Hong Kong's gazetted beaches

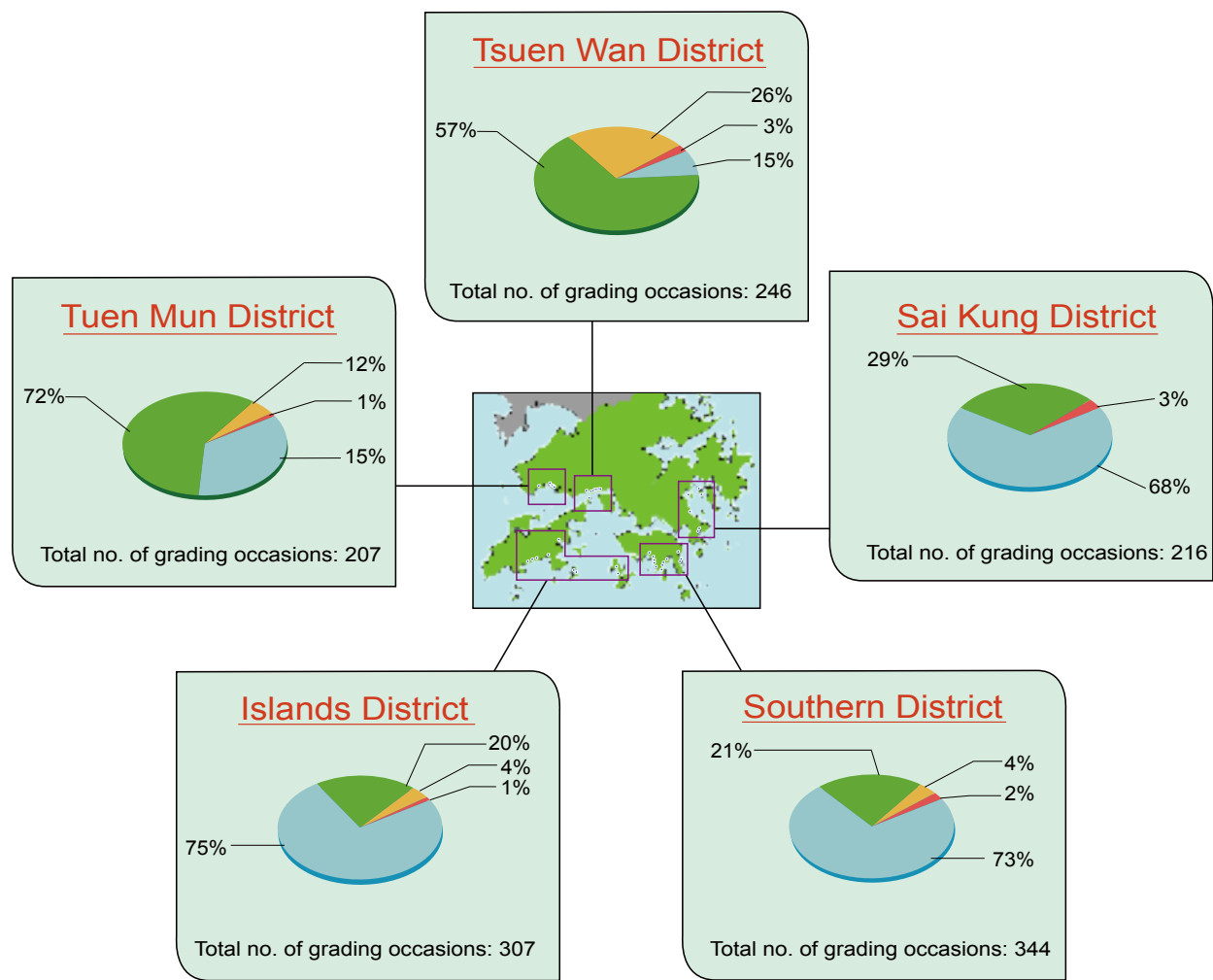


## Annual ranking of gazetted beaches at a glance in 2019

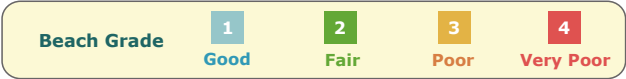




Weekly beach grading summary of open gazetted beaches by district in 2019



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

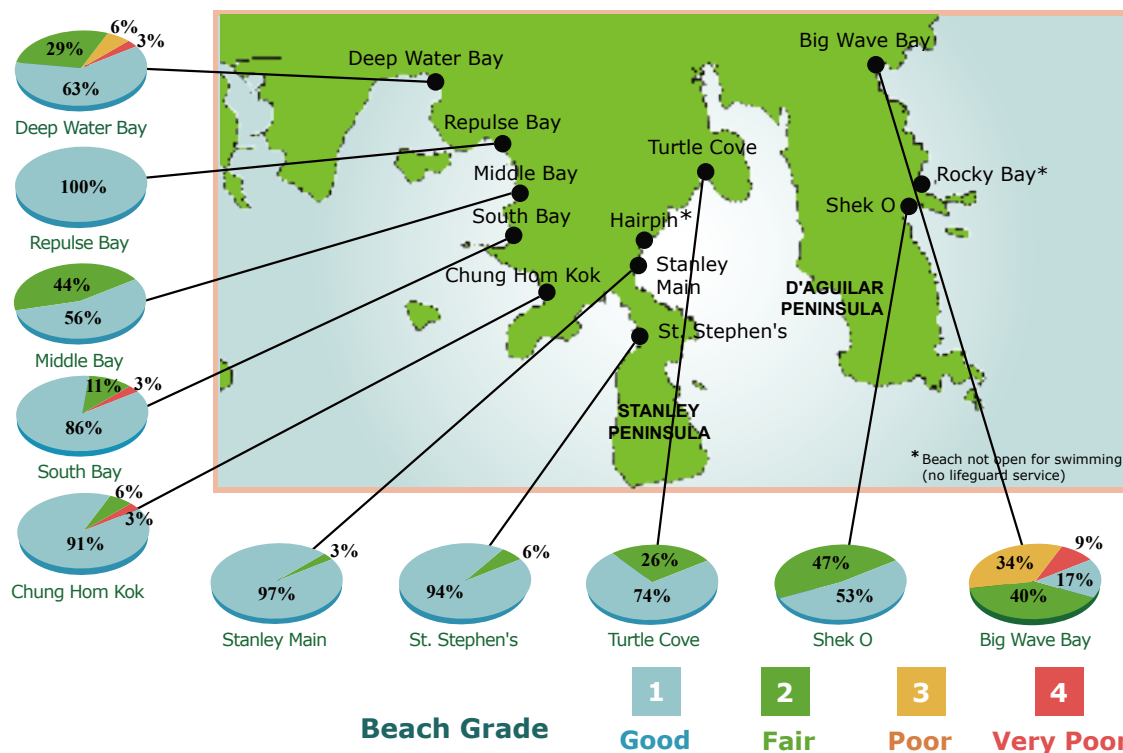


## Southern District beaches

### Annual ranking



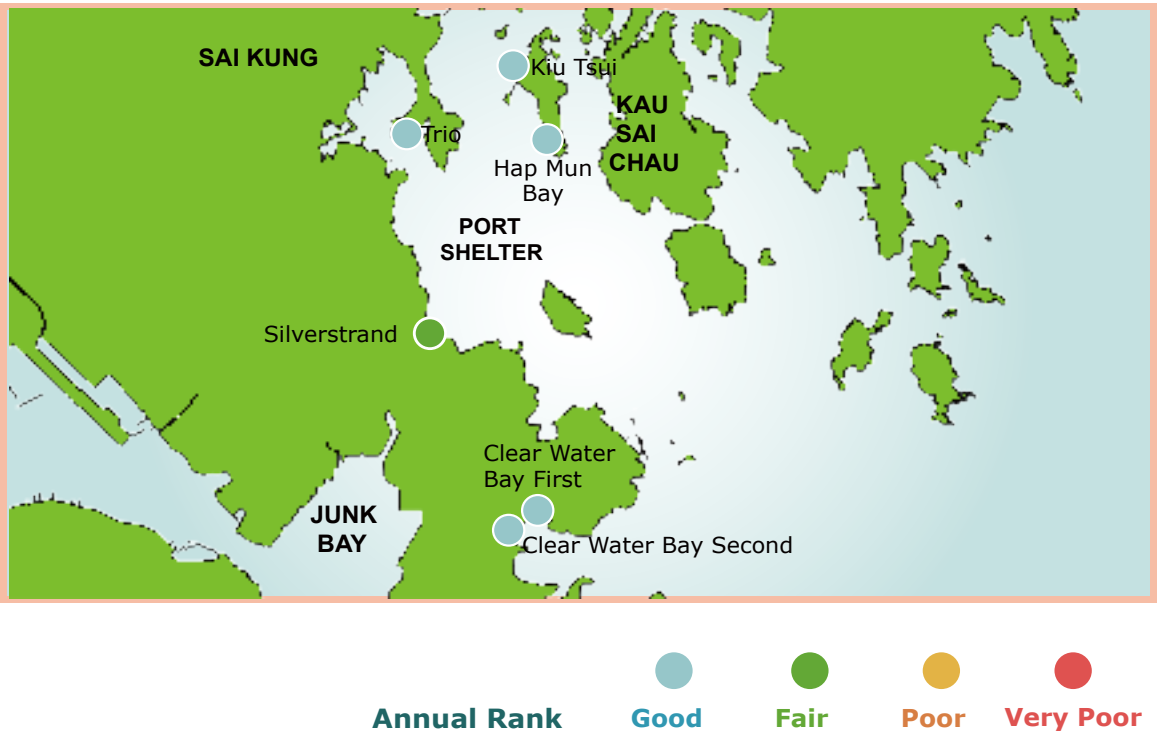
### Weekly grading



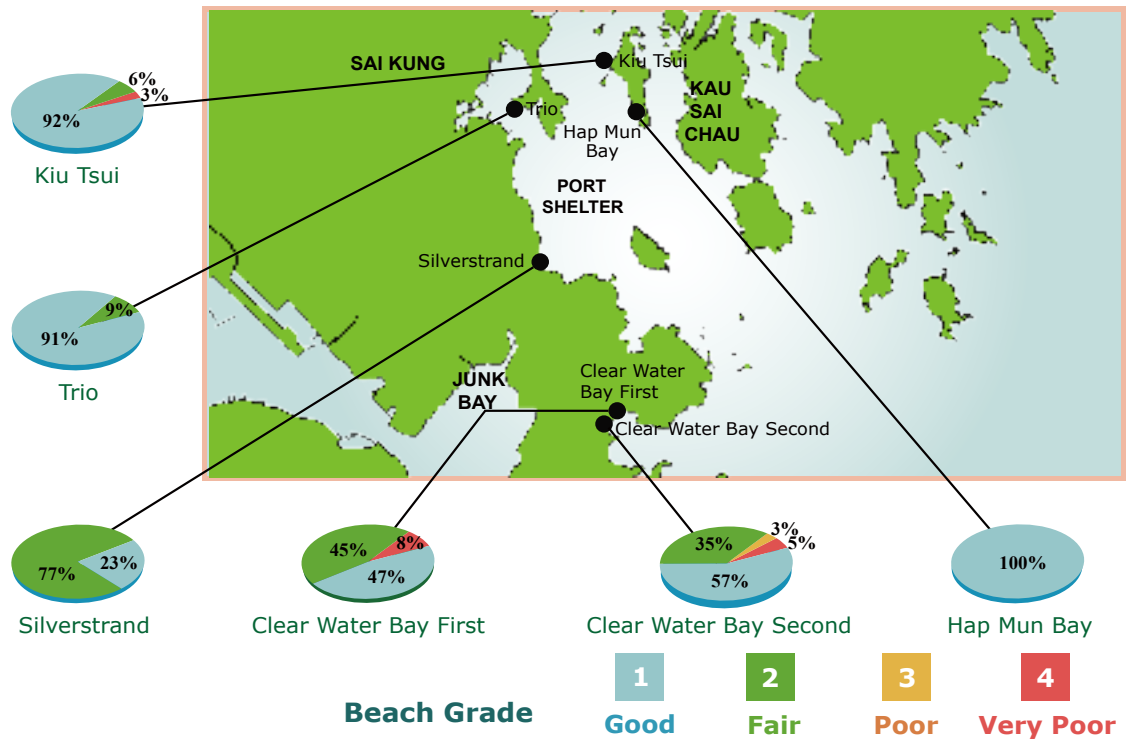
Note: Figures may not add up to 100% due to roundings; "\*" Beach not open for swimming. No grading was provided

Sai Kung District beaches

Annual ranking



Weekly grading



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

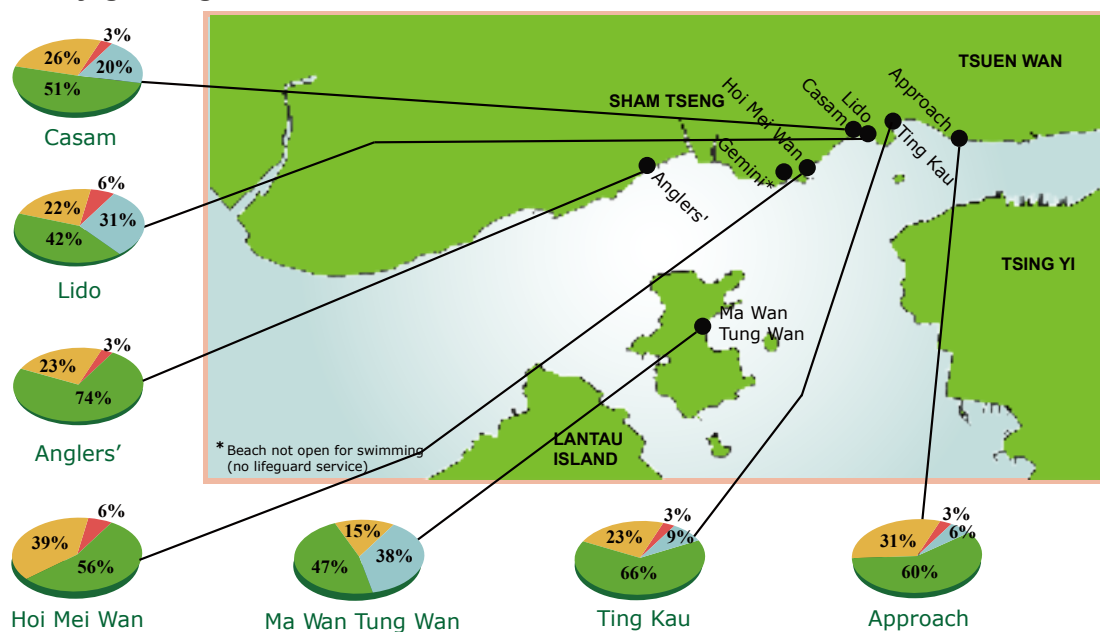


## Tsuen Wan District beaches

### Annual ranking



### Weekly grading



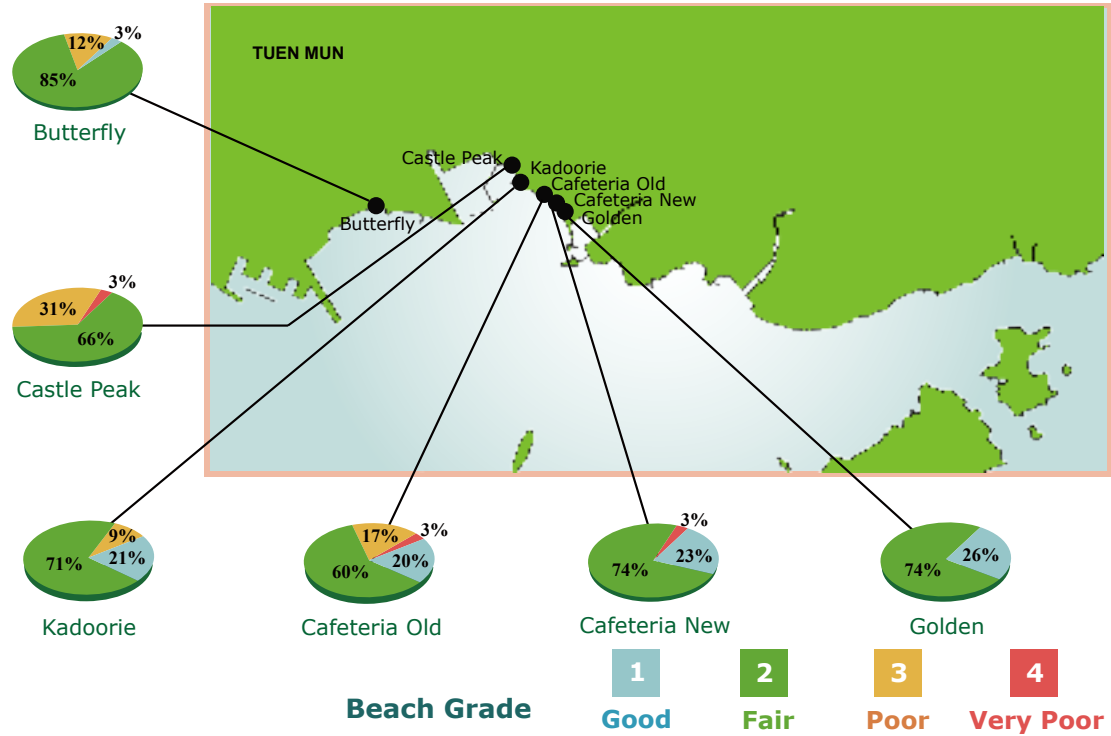
Note: Figures may not add up to 100% due to roundings; "\*" Beach not open for swimming. No grading was provided.

Tuen Mun District beaches

Annual ranking



Weekly grading



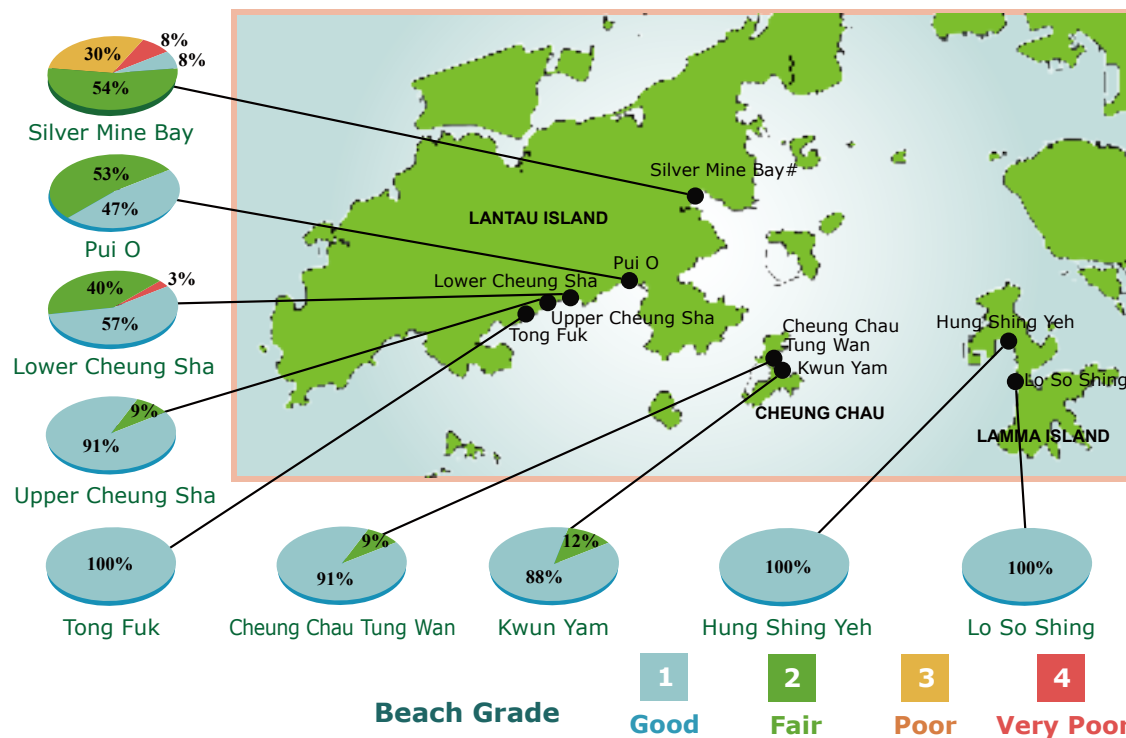
Note: Figures may not add up to 100% due to roundings

## Islands District beaches

### Annual ranking



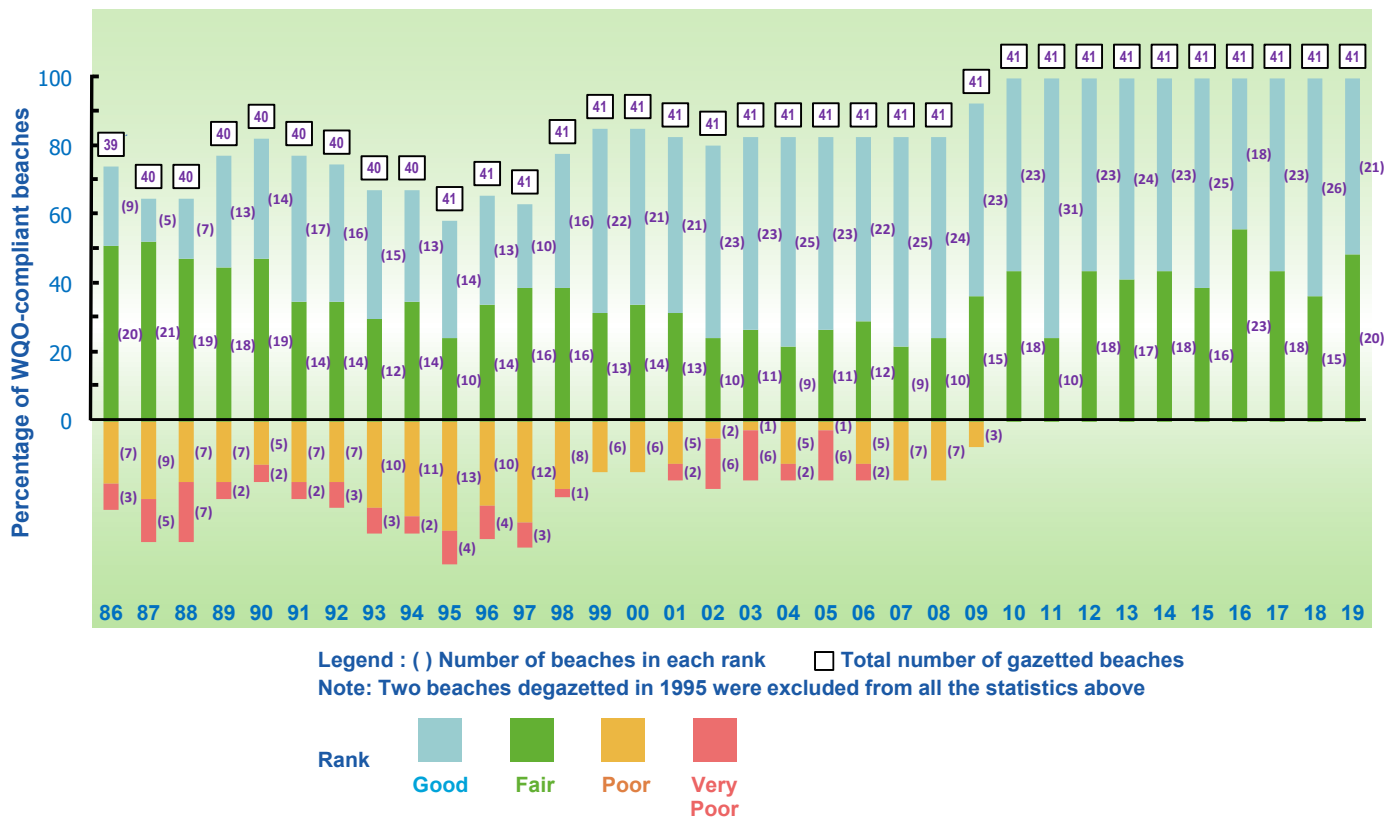
### Weekly grading



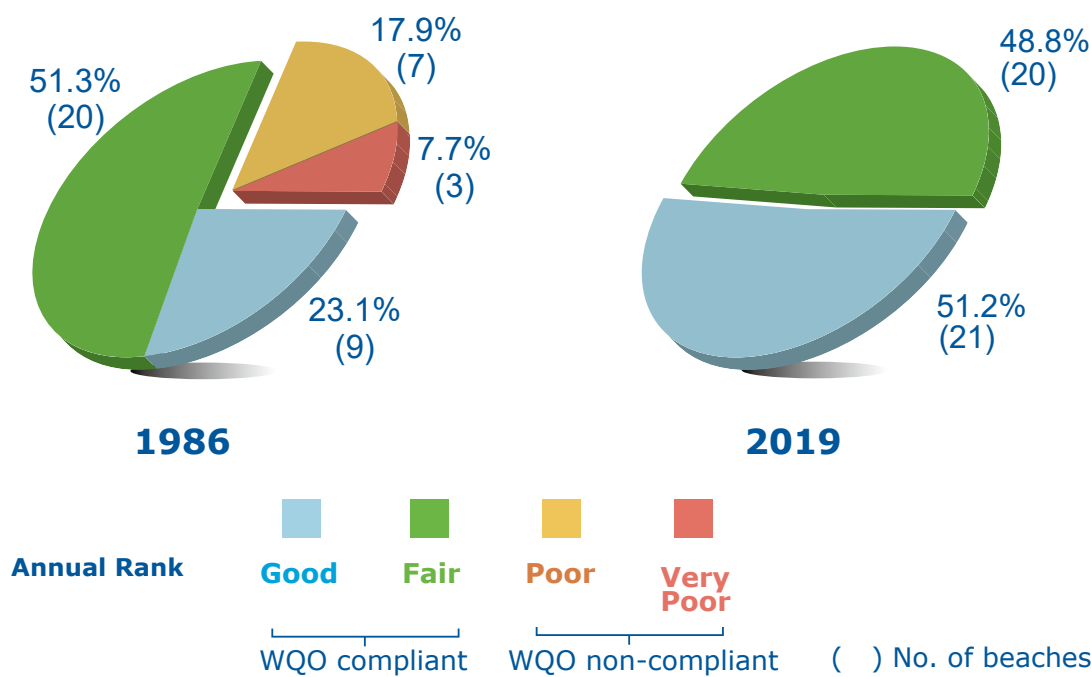
Note: Figures may not add up to 100% due to roundings



Annual beach rankings of gazetted beaches from 1986 to 2019

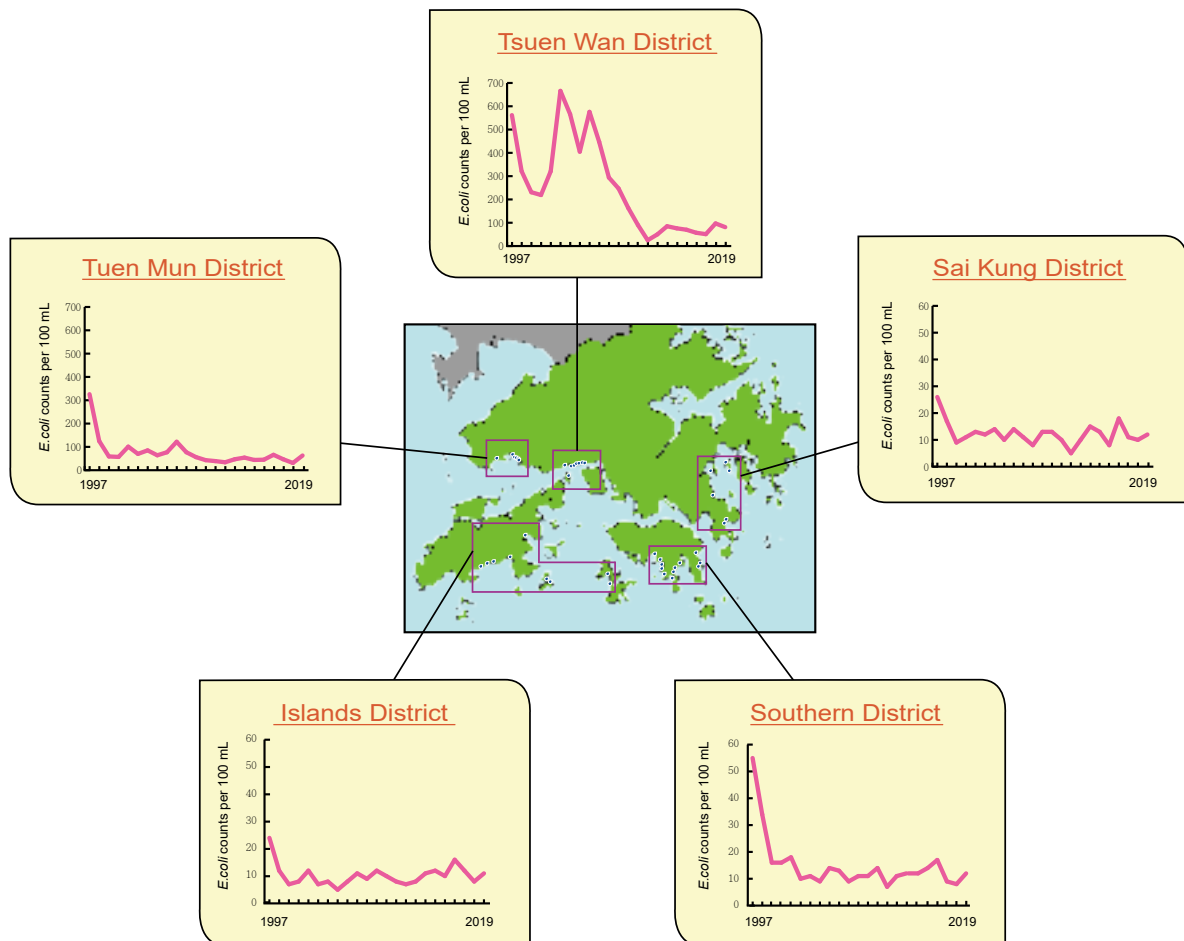


Comparison of annual beach ranking of gazetted beaches in 1986 and 2019



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 - 2019



Appendix A - Annual geometric mean *E. coli* levels (1997-2019)

Southern District  
Annual geometric mean *E. coli* levels

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

Beach	E. coli counts per 100mL										
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Big Wave Bay	46	149	17	31	21	40	21	78	36	34	103
Chung Hom Kok	14	9	5	5	8	13	13	6	6	4	6
Deep Water Bay	12	9	6	9	11	14	19	24	14	11	19
Hairpin	12*	33*	6*	9*	14*	12*	8*	17*	5*	8*	7*
Middle Bay	12	12	6	15	14	13	13	20	14	9	18
Repulse Bay	11	7	6	7	10	11	14	10	5	4	4
Rocky Bay	13*	50*	23*	30*	22*	16*	35*	47*	18*	29*	47*
Shek O	11	19	11	16	15	18	29	26	16	19	25
South Bay	4	4	4	5	4	5	9	5	3	2	4
St. Stephen's	6	4	4	4	10	5	6	7	4	4	5
Stanley Main	13	20	6	34	19	9	20	23	8	11	7
Turtle Cove	5	8	4	6	6	8	5	11	5	3	9

Note: \* Beach not open for swimming that year



## Sai Kung District

### Annual geometric mean *E. coli* levels

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

Beach	E. coli counts per 100mL										
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Clear Water Bay First	15	10	7	8	24	15	14	31	20	19	23
Clear Water Bay Second	27	13	5	18	15	18	17	32	16	13	17
Hap Mun Bay	3	3	2	2	7	4	2	4	3	3	2
Kiu Tsui	16	13	9	10	13	11	6	10	5	8	8
Silverstrand	51	28	18	30	39	40	18	63	56	24	40
Trio	5	6	2	9	8	10	4	13	7	7	9

## Tsuen Wan District

### Annual geometric mean *E. coli* levels

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

Beach	E. coli counts per 100mL										
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Anglers'	276*	134*	27*	69*	133	130	77	76	45	143	88
Approach	208*	124*	59	83	106	121	143	78	114	92	97
Casam	144*	102*	21	50	71	63	52	42	43	94	79
Gemini	410*	137*	19*	40*	135*	110*	56*	40*	39*	120*	79*
Hoi Mei Wan	130*	87*	23	51	86	58	90	65	63	92	112
Lido	178*	87*	21	32	53	57	52	39	34	76	65
Ma Wan Tung Wan	60	17	10	24	41	31	20	32	29	74	46
Ting Kau	145*	141*	58*	88*	107*	89	151	140	75	101	102

Note: \* Beach not open for swimming that year

Tuen Mun District  
Annual geometric mean *E. coli* levels

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

Beach	E. coli counts per 100mL										
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Butterfly	49	30	41	42	71	38	98	131	81	39	91
Cafeteria New	38	31	27	47	50	31	30	38	31	18	40
Cafeteria Old	46	34	29	48	39	45	41	70	50	30	64
Castle Peak	35	63	49	48	78	91	71	106	65	70	128
Golden	42	37	26	62	45	39	31	45	37	22	41
Kadoorie	48	45	37	40	52	37	29	48	31	28	52

Note: \* Beach not open for swimming that year

Islands District  
Annual geometric mean *E. coli* levels

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

Beach	E. coli counts per 100mL										
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Cheung Chau Tung Wan	17	12	6	13	10	14	19	9	18	9	8
Hung Shing Yeh	6	4	3	4	4	5	4	6	5	4	4
Kwun Yam	9	8	5	5	9	8	12	12	9	8	7
Lo So Shing	7	3	3	4	5	5	4	6	6	4	3
Lower Cheung Sha	13	11	9	10	17	21	17	47	19	9	25
Pui O	12	14	13	22	51	60	24	29	34	19	22
Silver Mine Bay	45	31	28	38	39	51	59	119	141*	36	106
Tong Fuk	5	5	4	4	7	4	4	9	3	4	5
Upper Cheung Sha	5	4	3	4	4	5	3	7	3	4	7

Note: \* Beach not open for swimming that year

## Appendix B - 2019 Beach visitor number

### Southern District

#### Visitor numbers during the 2019 bathing season

Beach	Daily average		Peak day	Peak month	Total
	Weekdays	Weekends & public holidays			
Big Wave Bay	170	527	1 850	12 120	69 900
Chung Hom Kok	121	574	1 800	10 060	65 495
Deep Water Bay	892	4 932	15 500	106 450	537 600
Hairpin	128	260	600	6 740	41 730
Middle Bay	135	249	490	6 370	42 165
Repulse Bay	10 919	12 733	23 300	399 500	2 818 510
Rocky Bay	---	---	---	---	---
Shek O	1 939	6 434	26 000	177 000	830 100
South Bay	75	335	700	6 950	38 900
St. Stephen's	229	372	800	13 800	67 400
Stanley Main	633	2 573	14 800	66 700	308 260
Turtle Cove	48	248	500	4 760	27 560

Note:

(1) Information provided by the Leisure and Cultural Services Department



## Sai Kung District

### Visitor numbers during the 2019 bathing season

Beach	Daily average		Peak day	Peak month	Total
	Weekdays	Weekends & public holidays			
Clear Water Bay First	168	603	1 960	15 270	75 580
Clear Water Bay Second	2 312	3 547	24 000	199 400	664 040
Hap Mun Bay	243	607	1 850	20 806	87 596
Kiu Tsui	270	373	790	13 900	73 132
Silverstrand	155	725	3 640	20 730	82 995
Trio	76	220	690	6 840	29 900

Note:

(1) Information provided by the Leisure and Cultural Services Department

## Tsuen Wan District

### Visitor numbers during the 2019 bathing season

Beach	Daily average		Peak day	Peak month	Total
	Weekdays	Weekends & public holidays			
Anglers'	134	534	980	9 250	64 490
Approach	71	139	450	4 620	22 740
Casam	42	70	250	2 520	12 570
Gemini	16	70	270	1 260	8 250
Hoi Mei Wan	31	172	580	3 140	18 690
Lido	439	961	11 900	27 950	148 840
Ma Wan Tung Wan	431	1 376	3 820	35 910	180 160
Ting Kau	100	217	750	5 720	33 755

Note:

(1) Information provided by the Leisure and Cultural Services Department

## Tuen Mun District

### Visitor numbers during the 2019 bathing season

Beach	Daily average		Peak day	Peak month	Total
	Weekdays	Weekends & public holidays			
Butterfly	740	1 181	2 100	31 070	216 100
Cafeteria New	899	1 651	3 550	62 900	279 680
Cafeteria Old	960	1 437	2 170	41 530	272 880
Castle Peak	462	1 265	1 900	22 960	176 690
Golden	1 832	4 806	16 500	103 600	683 750
Kadoorie	768	778	1 400	31 250	188 880

Note:

(1) Information provided by the Leisure and Cultural Services Department

## Islands District

### Visitor numbers during the 2019 bathing season

Beach	Daily average		Peak day	Peak month	Total
	Weekdays	Weekends & public holidays			
Cheung Chau Tung Wan	466	2 137	5 150	45 920	246 250
Hung Shing Yeh	661	985	2 090	37 770	187 570
Kwun Yam	142	648	1 600	15 440	74 670
Lo So Shing	187	269	450	9 040	52 230
Lower Cheung Sha	366	1 285	2 450	31 300	162 300
Pui O	1 110	2 353	4 870	82 240	370 160
Silver Mine Bay	205	984	4 450	17 890	111 825
Tong Fuk	344	531	1 450	26 190	98 990
Upper Cheung Sha	491	665	1 410	27 880	134 080

Note:

(1) Information provided by the Leisure and Cultural Services Department

Appendix C - Physicochemical water quality data for gazetted beaches, 2019

Southern District  
Summary of physicochemical water quality data of gazetted beaches, 2019

Beach	pH	Salinity (psu) <sup>1</sup>	Turbidity (NTU) <sup>2</sup>	Temperature (°C)	Dissolved Oxygen (mg/L) (% Saturation)	
Big Wave Bay	8.24 ( 7.99 - 8.47 )	28.1 ( 18.2 - 33.3 )	7.36 ( 0.79 - 129.00 )	26.6 ( 20.3 - 30.2 )	6.4 ( 3.0 - 9.1 )	92 ( 33 - 127 )
Chung Hom Kok	8.27 ( 8.09 - 8.63 )	28.8 ( 3.2 - 33.5 )	3.84 ( 1.18 - 12.70 )	26.9 ( 20.1 - 31.3 )	6.6 ( 5.2 - 8.6 )	95 ( 79 - 124 )
Deep Water Bay	8.24 ( 7.94 - 8.63 )	28.4 ( 18.1 - 33.4 )	7.46 ( 1.19 - 42.50 )	26.9 ( 20.5 - 31.0 )	6.3 ( 4.3 - 8.0 )	92 ( 67 - 108 )
Hairpin*	8.31 ( 8.14 - 8.81 )	29.4 ( 20.6 - 33.4 )	2.83 ( 0.31 - 17.10 )	27.1 ( 20.8 - 32.5 )	6.8 ( 4.8 - 9.2 )	98 ( 73 - 128 )
Middle Bay	8.28 ( 8.14 - 8.65 )	29.2 ( 21.8 - 33.4 )	4.13 ( 1.19 - 9.62 )	26.7 ( 20.5 - 31.6 )	6.6 ( 5.4 - 9.1 )	96 ( 78 - 130 )
Repulse Bay	8.29 ( 8.16 - 8.72 )	29.9 ( 21.8 - 33.5 )	4.70 ( 1.13 - 13.80 )	26.7 ( 20.3 - 30.8 )	6.6 ( 5.2 - 8.6 )	95 ( 79 - 115 )
Rocky Bay*	8.21 ( 8.02 - 8.36 )	29.6 ( 19.7 - 33.1 )	6.04 ( 0.98 - 26.80 )	26.2 ( 20.3 - 30.0 )	6.5 ( 4.7 - 9.2 )	94 ( 66 - 129 )
Shek O	8.27 ( 8.09 - 8.49 )	30.5 ( 23.0 - 33.6 )	4.30 ( 1.11 - 15.50 )	26.6 ( 20.4 - 30.5 )	6.4 ( 4.6 - 8.8 )	92 ( 68 - 119 )
South Bay	8.28 ( 8.06 - 8.64 )	29.6 ( 22.0 - 33.6 )	2.80 ( 0.78 - 9.08 )	27.0 ( 20.1 - 31.5 )	6.4 ( 4.7 - 8.6 )	94 ( 71 - 121 )
St. Stephen`s	8.25 ( 8.09 - 8.62 )	29.7 ( 20.9 - 33.6 )	2.65 ( 0.83 - 5.33 )	26.8 ( 20.1 - 29.8 )	6.4 ( 4.4 - 8.2 )	94 ( 65 - 112 )
Stanley Main	8.30 ( 8.14 - 8.73 )	29.5 ( 20.4 - 33.3 )	3.19 ( 1.12 - 11.30 )	27.1 ( 20.7 - 31.8 )	6.6 ( 5.4 - 8.7 )	97 ( 81 - 122 )
Turtle Cove	8.30 ( 8.18 - 8.69 )	28.6 ( 8.9 - 33.4 )	6.11 ( 1.33 - 40.20 )	27.1 ( 20.0 - 32.0 )	6.6 ( 5.0 - 8.9 )	95 ( 75 - 125 )

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

1. Practical Salinity Unit; 2. Nephelometric Turbidity Unit

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

Appendix C



## Sai Kung District

### Summary of physicochemical water quality data of gazetted beaches, 2019

Beach	pH	Salinity (psu) <sup>1</sup>	Turbidity (NTU) <sup>2</sup>	Temperature (°C)	Dissolved Oxygen (mg/L) (% Saturation)	
Clear Water Bay First	8.30 ( 8.17 - 8.50 )	29.2 ( 19.2 - 33.1 )	6.00 ( 1.15 - 33.60 )	27.1 ( 19.9 - 32.0 )	6.3 ( 4.2 - 8.6 )	92 ( 66 - 119 )
Clear Water Bay Second	8.29 ( 8.13 - 8.48 )	29.8 ( 20.5 - 33.1 )	6.65 ( 1.19 - 27.60 )	27.2 ( 19.8 - 31.8 )	6.2 ( 4.4 - 8.5 )	90 ( 66 - 117 )
Hap Mun Bay	8.30 ( 8.16 - 8.53 )	30.5 ( 25.0 - 33.2 )	3.49 ( 0.74 - 17.10 )	27.6 ( 19.3 - 33.1 )	6.2 ( 4.4 - 8.1 )	92 ( 69 - 116 )
Kiu Tsui	8.26 ( 8.05 - 8.53 )	30.1 ( 23.9 - 33.1 )	3.18 ( 0.51 - 13.90 )	27.4 ( 19.2 - 32.6 )	6.1 ( 4.2 - 7.5 )	90 ( 66 - 104 )
Silverstrand	8.30 ( 8.13 - 8.52 )	28.6 ( 21.9 - 32.4 )	3.97 ( 0.89 - 19.10 )	27.0 ( 18.8 - 31.7 )	6.4 ( 3.8 - 8.6 )	92 ( 58 - 115 )
Trio	8.26 ( 8.13 - 8.50 )	29.1 ( 21.9 - 32.8 )	2.97 ( 0.79 - 10.80 )	27.8 ( 21.0 - 32.5 )	6.3 ( 4.6 - 7.6 )	92 ( 71 - 113 )

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

1. Practical Salinity Unit; 2. Nephelometric Turbidity Unit

## Tsuen Wan District

### Summary of physicochemical water quality data of gazetted beaches, 2019

Beach	pH	Salinity (psu) <sup>1</sup>	Turbidity (NTU) <sup>2</sup>	Temperature (°C)	Dissolved Oxygen (mg/L) (% Saturation)	
Anglers'	8.17 ( 8.00 - 8.39 )	27.0 ( 13.7 - 32.2 )	3.97 ( 0.94 - 9.28 )	26.5 ( 20.6 - 30.6 )	6.3 ( 4.3 - 9.5 )	90 ( 64 - 130 )
Approach	8.18 ( 8.00 - 8.48 )	25.3 ( 14.6 - 31.6 )	5.17 ( 1.18 - 26.90 )	26.7 ( 20.4 - 30.0 )	6.5 ( 4.7 - 8.2 )	91 ( 68 - 117 )
Casam	8.16 ( 7.99 - 8.36 )	25.4 ( 16.3 - 31.6 )	3.54 ( 0.75 - 11.20 )	26.8 ( 20.7 - 30.3 )	6.3 ( 4.5 - 8.4 )	90 ( 65 - 118 )
Gemini*	8.14 ( 7.97 - 8.41 )	26.4 ( 15.2 - 32.2 )	3.35 ( 0.99 - 8.92 )	26.6 ( 20.3 - 30.8 )	6.3 ( 4.3 - 8.5 )	88 ( 67 - 115 )
Hoi Mei Wan	8.13 ( 7.97 - 8.37 )	25.2 ( 16.4 - 31.4 )	3.32 ( 0.99 - 8.69 )	26.9 ( 20.6 - 30.8 )	6.2 ( 4.3 - 9.6 )	88 ( 62 - 130 )
Lido	8.15 ( 8.01 - 8.35 )	25.3 ( 16.0 - 31.7 )	4.22 ( 0.75 - 12.50 )	26.8 ( 20.4 - 29.8 )	6.1 ( 4.3 - 8.2 )	86 ( 61 - 117 )
Ma Wan Tung Wan	8.13 ( 7.93 - 8.32 )	27.2 ( 19.1 - 31.4 )	6.23 ( 1.69 - 34.20 )	26.9 ( 20.2 - 30.2 )	6.0 ( 4.3 - 7.7 )	86 ( 65 - 108 )
Ting Kau	8.17 ( 8.02 - 8.42 )	24.8 ( 16.1 - 31.7 )	4.32 ( 1.06 - 23.20 )	26.9 ( 20.7 - 30.5 )	6.4 ( 4.5 - 9.7 )	90 ( 64 - 130 )

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

1. Practical Salinity Unit; 2. Nephelometric Turbidity Unit

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

Tuen Mun District  
Summary of physicochemical water quality data of gazetted beaches, 2019

Beach	pH	Salinity (psu) <sup>1</sup>	Turbidity (NTU) <sup>2</sup>	Temperature (°C)	Dissolved Oxygen (mg/L) (% Saturation)	
Butterfly	8.13 ( 7.96 - 8.39 )	22.6 ( 9.4 - 29.6 )	9.59 ( 2.56 - 48.70 )	27.5 ( 20.7 - 32.2 )	6.2 ( 4.3 - 9.6 )	89 ( 64 - 125 )
Cafeteria New	8.15 ( 7.94 - 8.42 )	22.0 ( 9.0 - 30.1 )	8.00 ( 1.81 - 18.70 )	27.3 ( 20.3 - 32.0 )	6.3 ( 4.7 - 9.5 )	90 ( 70 - 126 )
Cafeteria Old	8.14 ( 7.95 - 8.45 )	21.7 ( 8.3 - 29.6 )	7.60 ( 1.61 - 35.30 )	27.4 ( 20.3 - 32.2 )	6.3 ( 4.3 - 9.0 )	88 ( 63 - 119 )
Castle Peak	8.18 ( 7.98 - 8.54 )	21.5 ( 7.9 - 29.6 )	5.08 ( 1.83 - 13.30 )	27.5 ( 21.2 - 32.1 )	6.6 ( 4.8 - 9.2 )	94 ( 70 - 122 )
Golden	8.13 ( 7.97 - 8.44 )	22.4 ( 9.3 - 30.1 )	8.28 ( 1.72 - 22.40 )	27.3 ( 20.1 - 32.1 )	6.4 ( 4.9 - 9.7 )	91 ( 70 - 130 )
Kadoorie	8.16 ( 8.01 - 8.57 )	21.8 ( 8.4 - 29.6 )	6.11 ( 1.31 - 25.40 )	27.4 ( 20.4 - 31.5 )	6.3 ( 4.8 - 8.3 )	90 ( 70 - 111 )

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

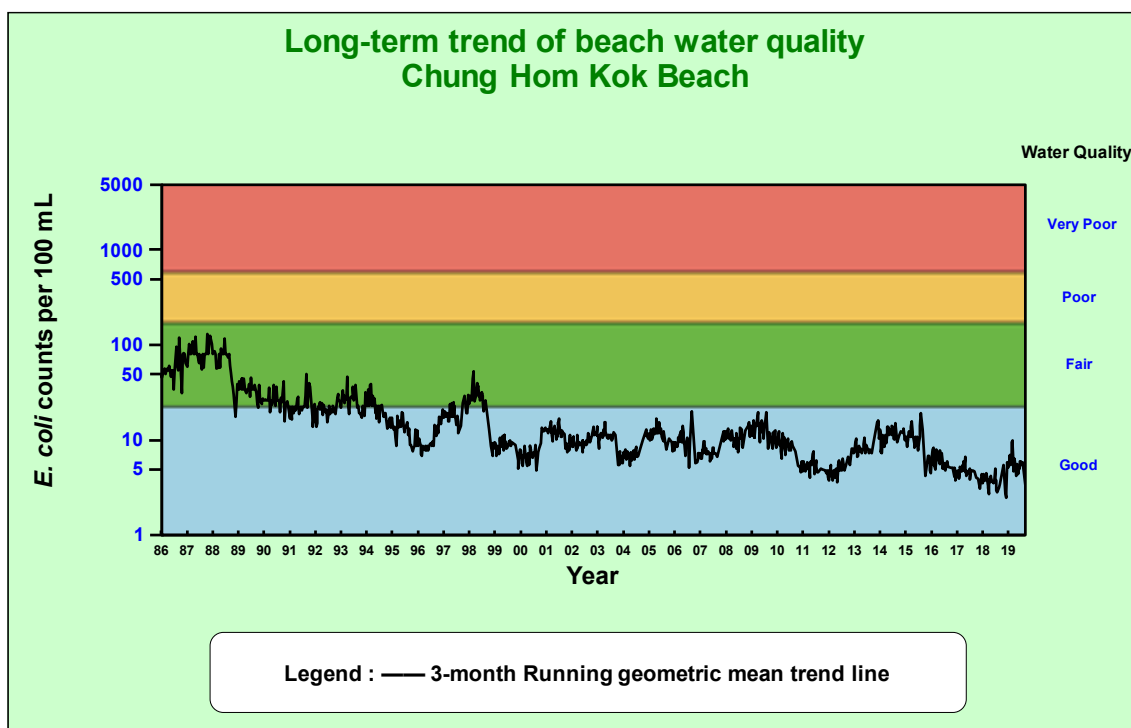
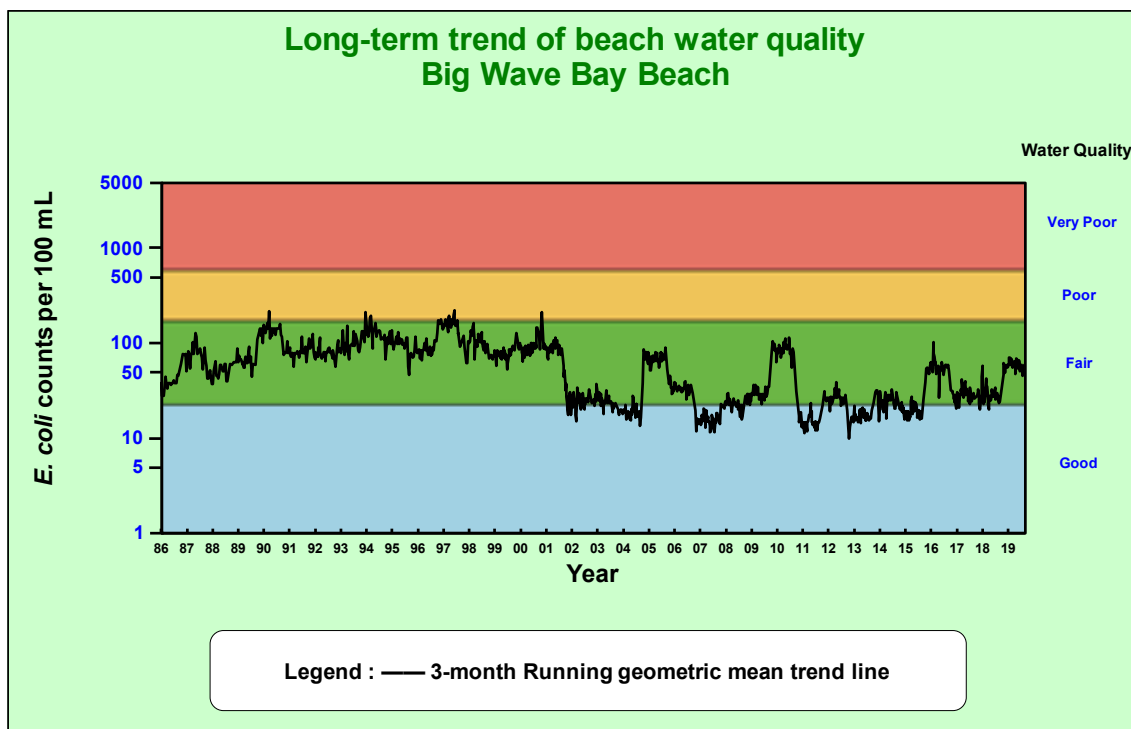
Islands District  
Summary of physicochemical water quality data of gazetted beaches, 2019

Beach	pH	Salinity (psu) <sup>1</sup>	Turbidity (NTU) <sup>2</sup>	Temperature (°C)	Dissolved Oxygen (mg/L) (% Saturation)	
Cheung Chau Tung Wan	8.22 ( 8.04 - 8.46 )	27.5 ( 21.4 - 31.8 )	3.14 ( 1.22 - 9.70 )	27.1 ( 18.9 - 30.6 )	6.5 ( 4.7 - 8.2 )	93 ( 68 - 124 )
Hung Shing Yeh	8.27 ( 8.10 - 8.66 )	28.5 ( 21.2 - 33.5 )	6.20 ( 1.32 - 22.60 )	27.3 ( 20.8 - 30.7 )	6.3 ( 4.4 - 9.2 )	91 ( 62 - 130 )
Kwun Yam	8.21 ( 8.01 - 8.58 )	27.0 ( 20.2 - 31.8 )	3.04 ( 1.15 - 7.78 )	27.0 ( 18.7 - 30.5 )	6.4 ( 4.4 - 10.0 )	91 ( 63 - 129 )
Lo So Shing	8.23 ( 8.09 - 8.54 )	29.3 ( 22.0 - 33.5 )	4.10 ( 1.43 - 9.54 )	27.2 ( 21.1 - 30.9 )	6.5 ( 5.2 - 8.4 )	93 ( 75 - 122 )
Lower Cheung Sha	8.27 ( 8.12 - 8.57 )	27.1 ( 16.3 - 32.2 )	11.25 ( 2.84 - 35.70 )	27.7 ( 21.8 - 31.5 )	6.2 ( 4.7 - 7.7 )	90 ( 67 - 114 )
Pui O	8.27 ( 8.11 - 8.59 )	26.7 ( 16.6 - 32.5 )	16.05 ( 3.16 - 54.90 )	28.4 ( 22.1 - 32.7 )	6.2 ( 4.6 - 7.8 )	90 ( 73 - 114 )
Silver Mine Bay	8.17 ( 7.93 - 8.60 )	22.1 ( 5.7 - 31.1 )	12.16 ( 2.76 - 73.40 )	27.8 ( 21.2 - 31.6 )	6.6 ( 4.2 - 8.6 )	94 ( 64 - 123 )
Tong Fuk	8.28 ( 8.17 - 8.53 )	27.4 ( 16.9 - 32.1 )	8.23 ( 2.64 - 22.90 )	27.5 ( 21.6 - 31.7 )	6.3 ( 4.8 - 7.7 )	92 ( 70 - 111 )
Upper Cheung Sha	8.28 ( 8.16 - 8.56 )	27.4 ( 17.1 - 32.2 )	9.72 ( 1.54 - 44.70 )	27.5 ( 21.2 - 31.7 )	6.3 ( 4.8 - 8.4 )	91 ( 69 - 120 )

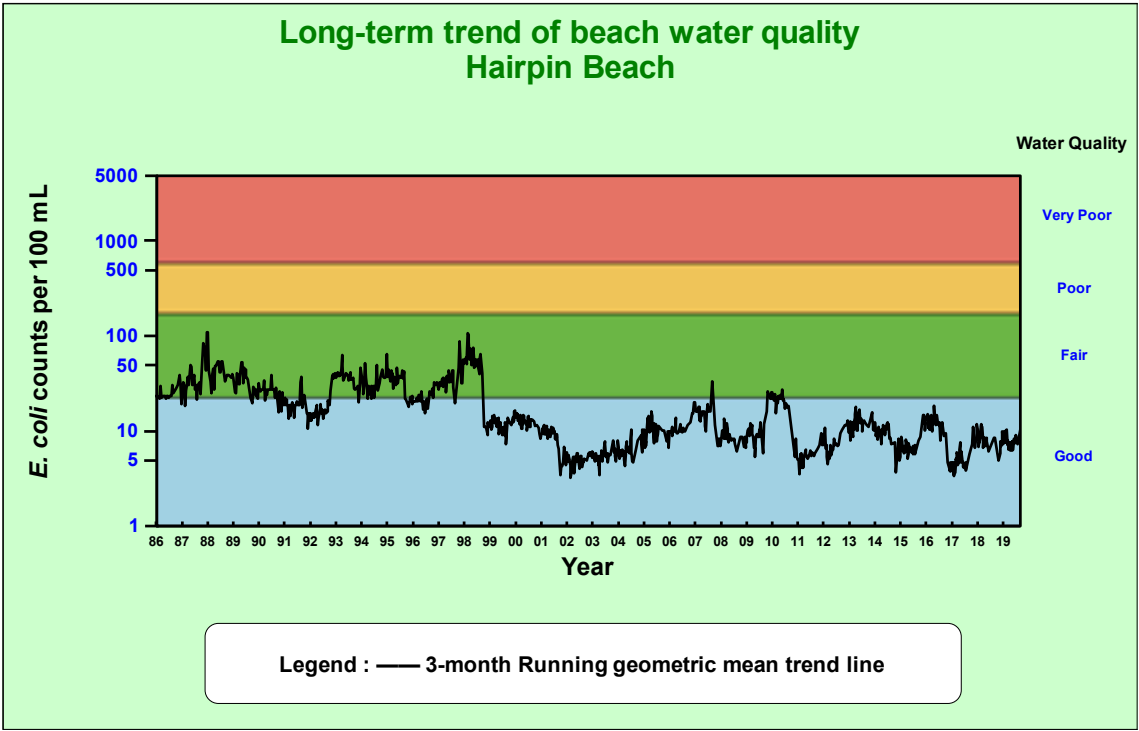
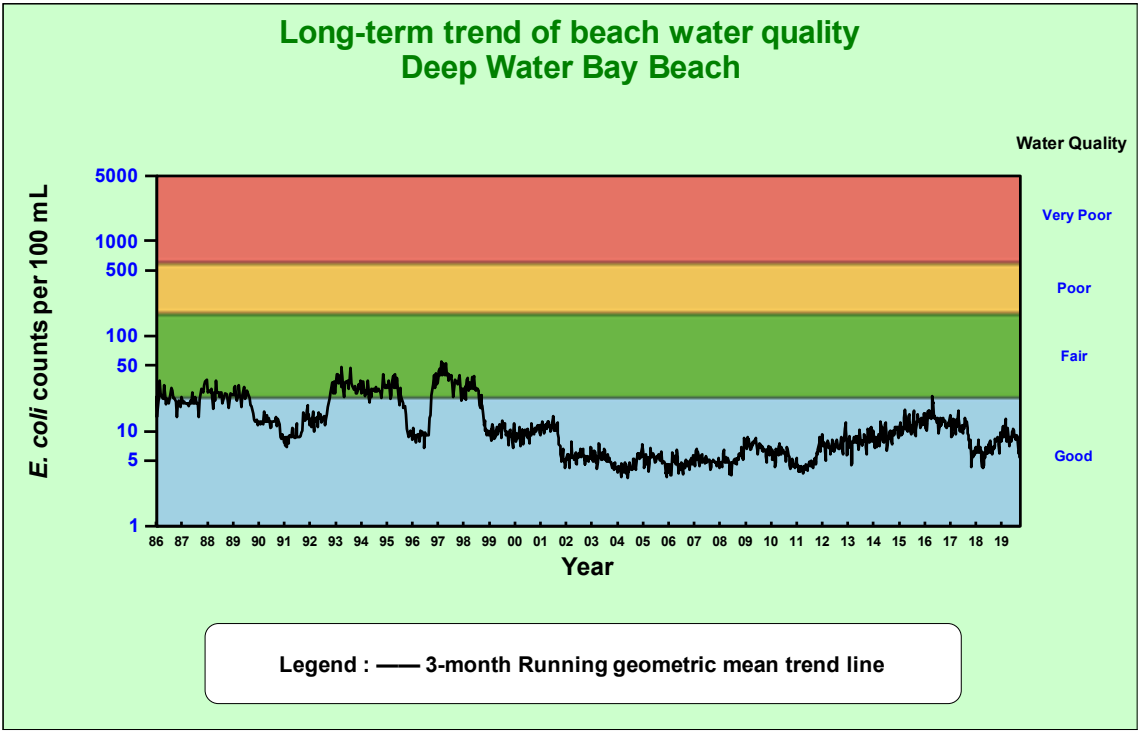
Note: Data presented are arithmetic means; figures in brackets are ranges  
1. Practical Salinity Unit; 2. Nephelometric Turbidity Unit

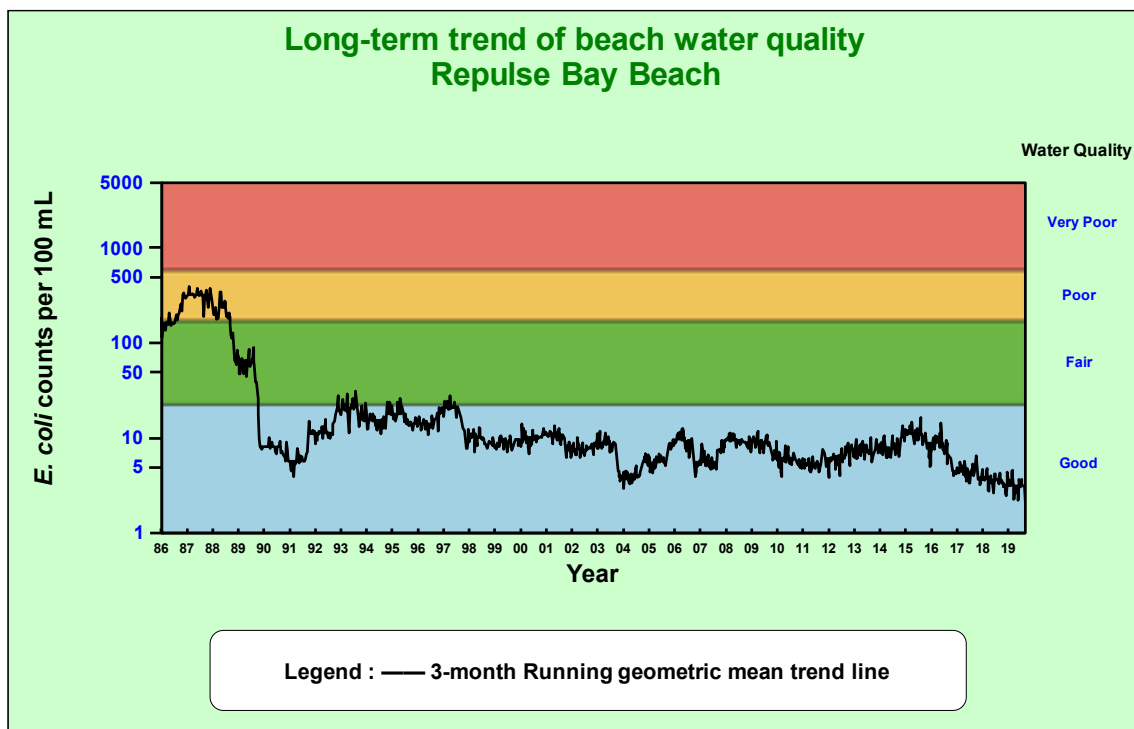
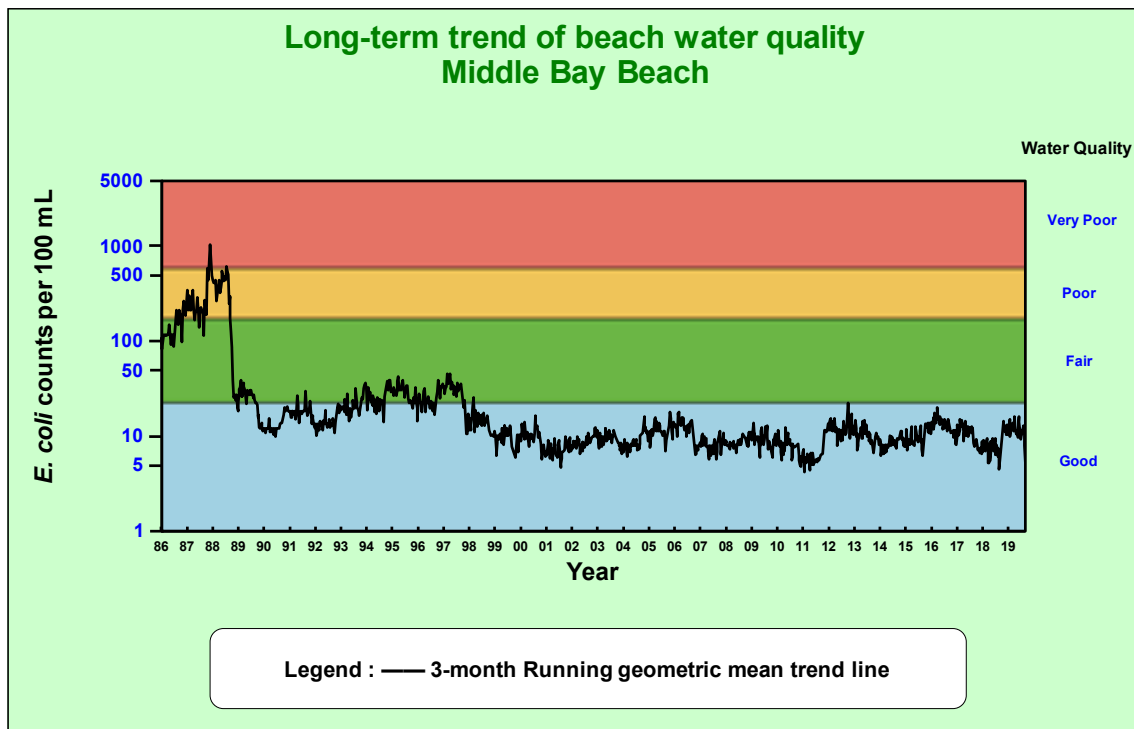
## Appendix D - Long-term trend of beach water quality (1986 - 2019)

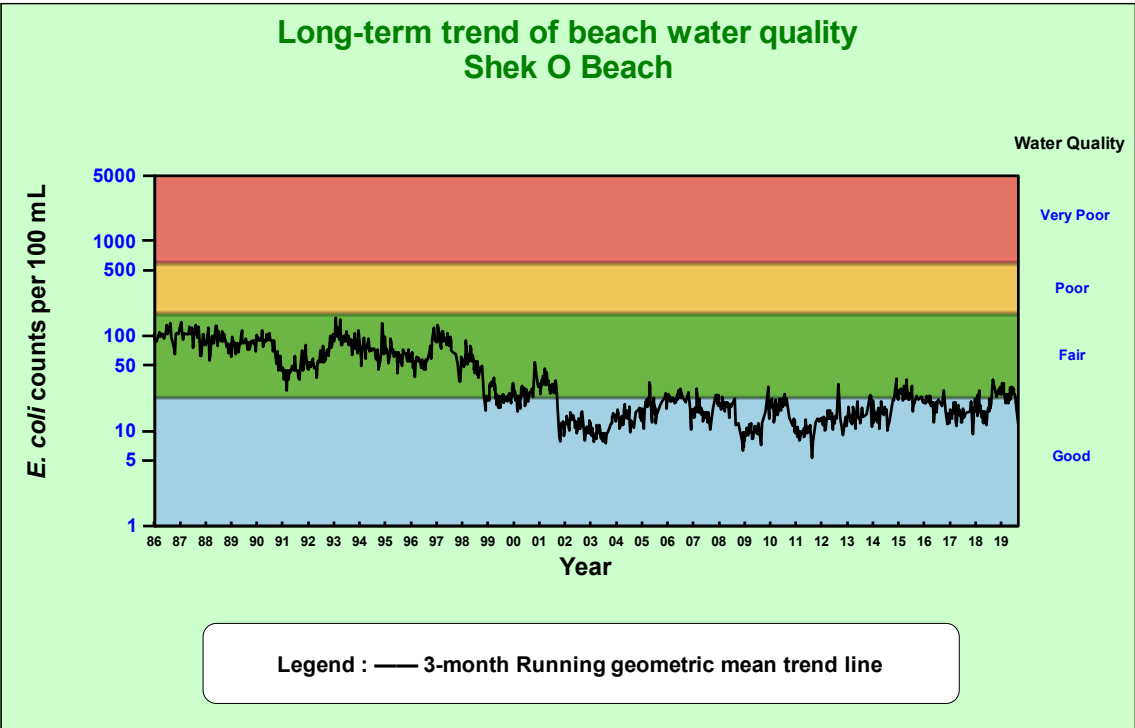
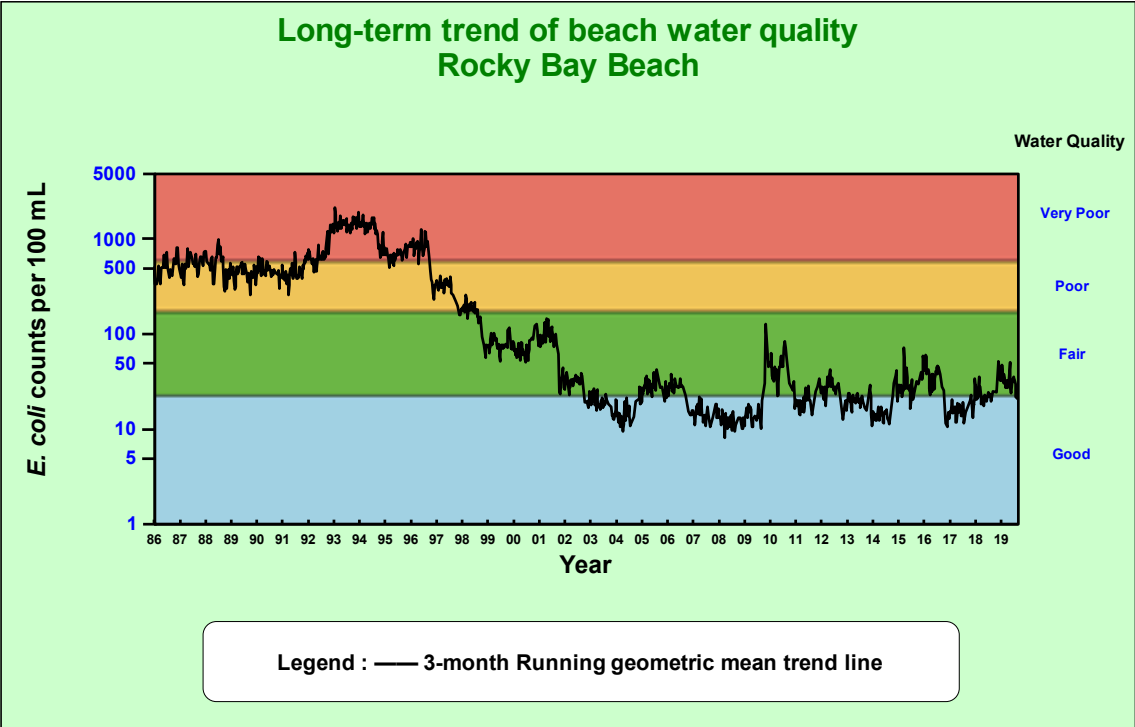
### Southern District

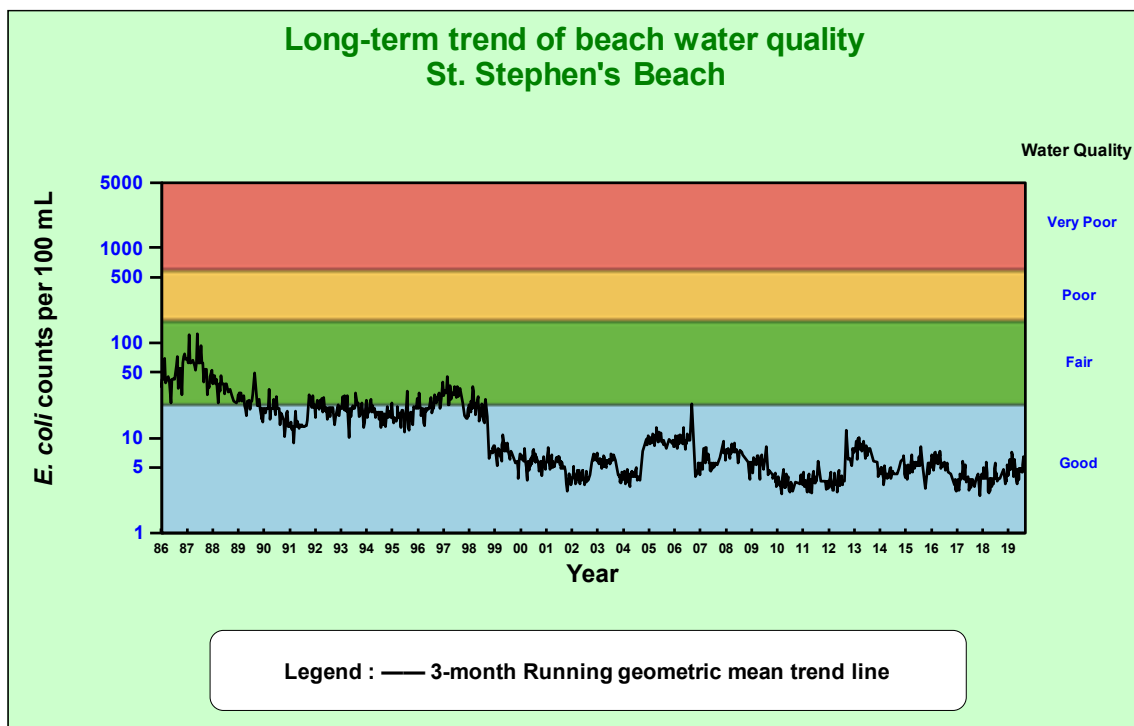
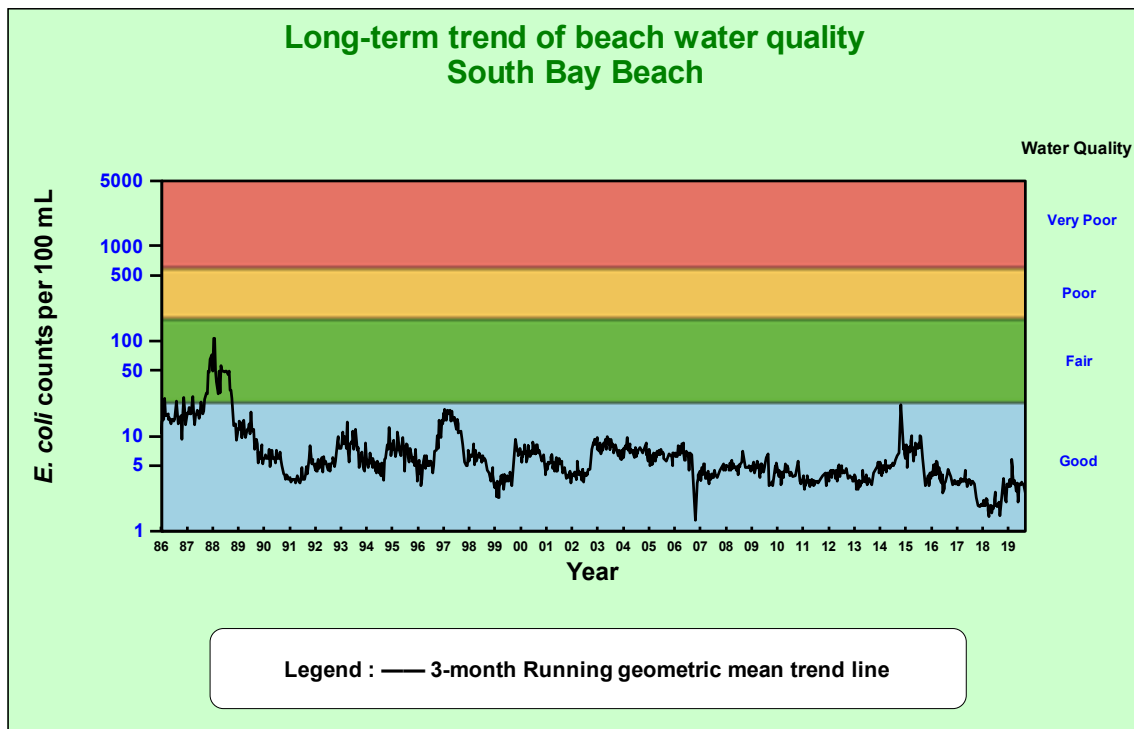




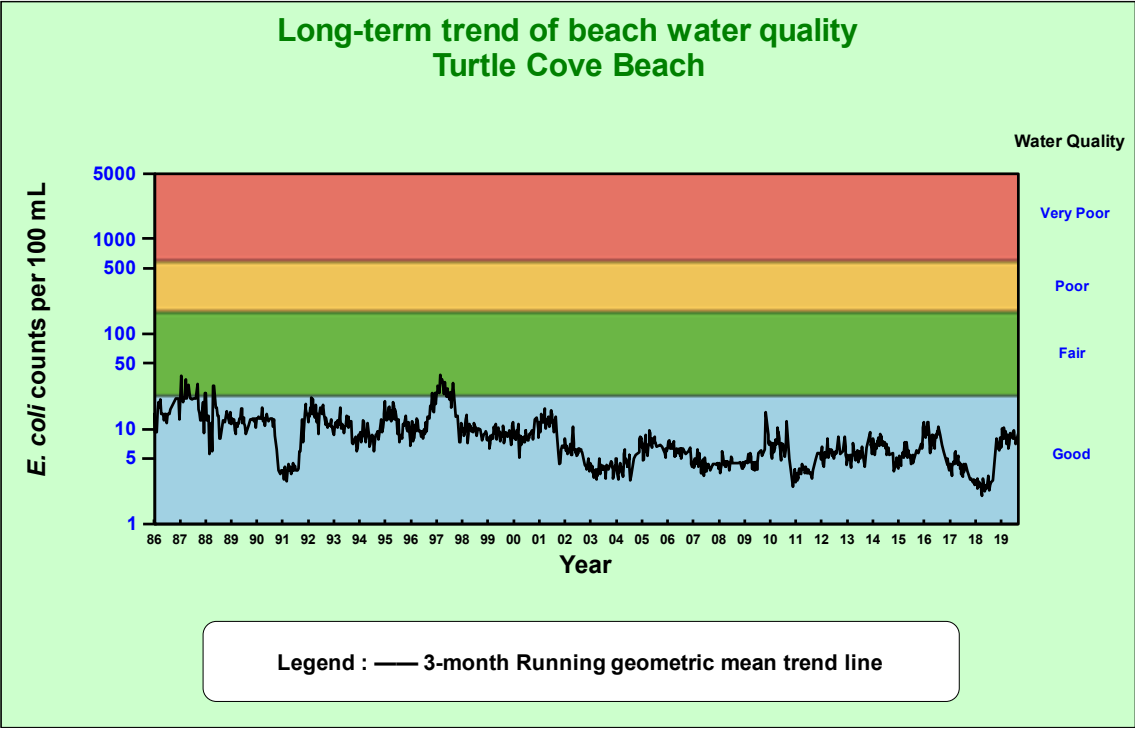
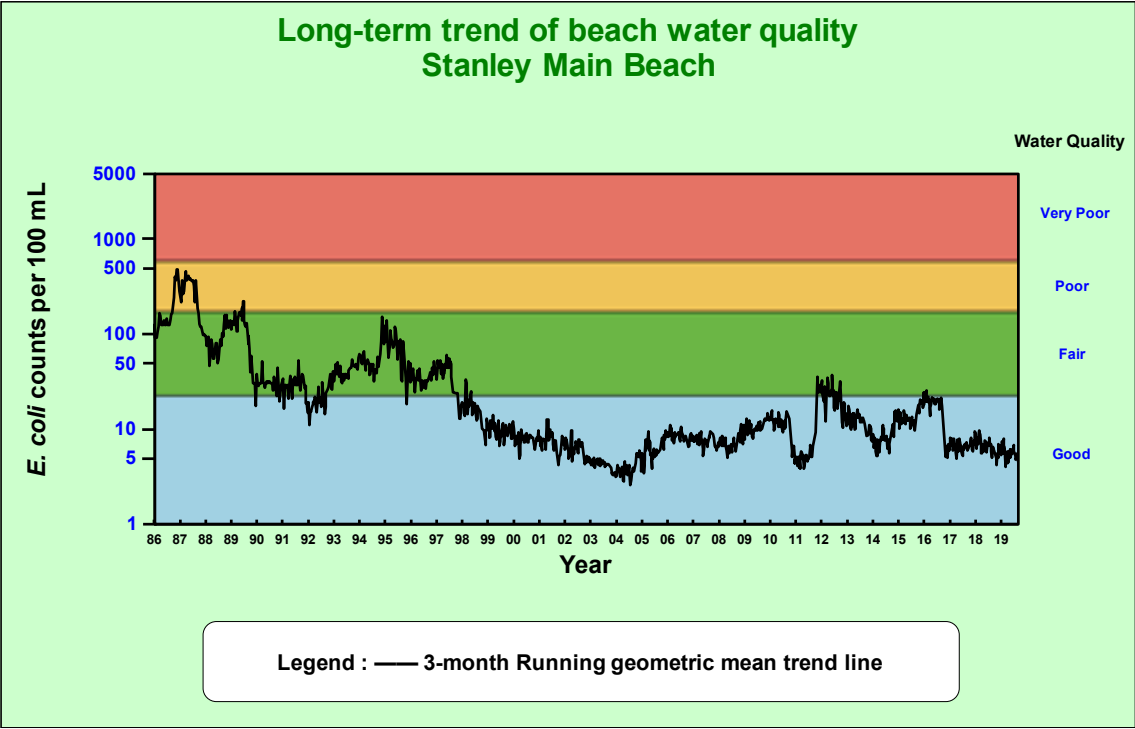




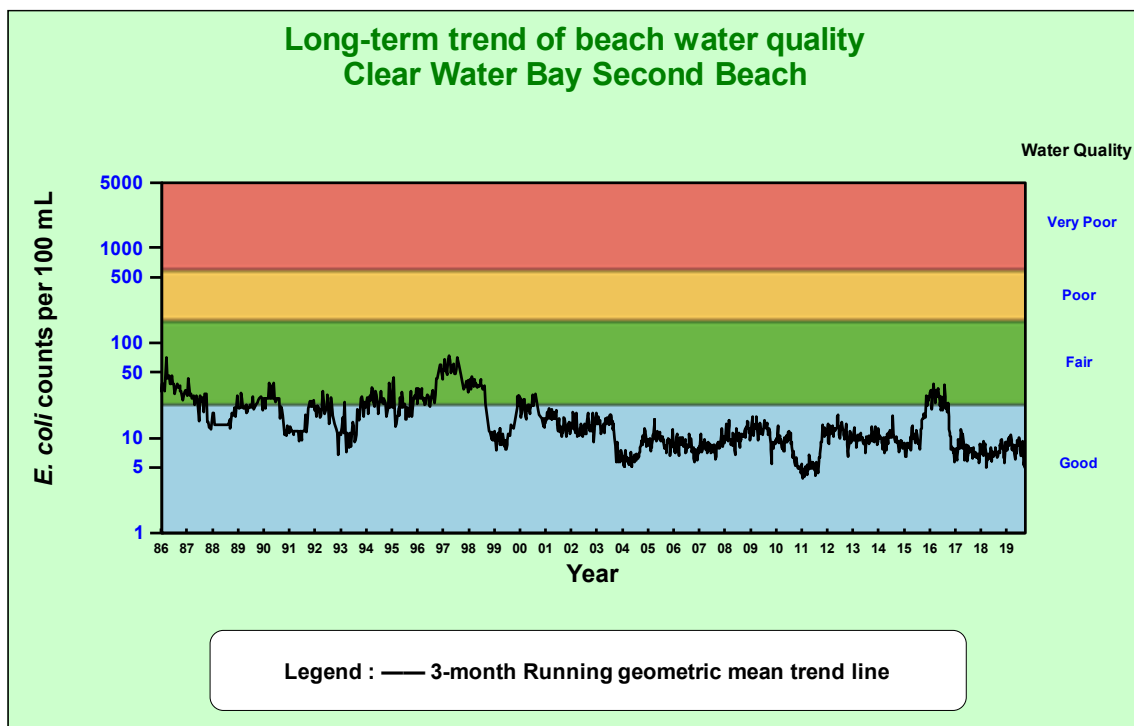
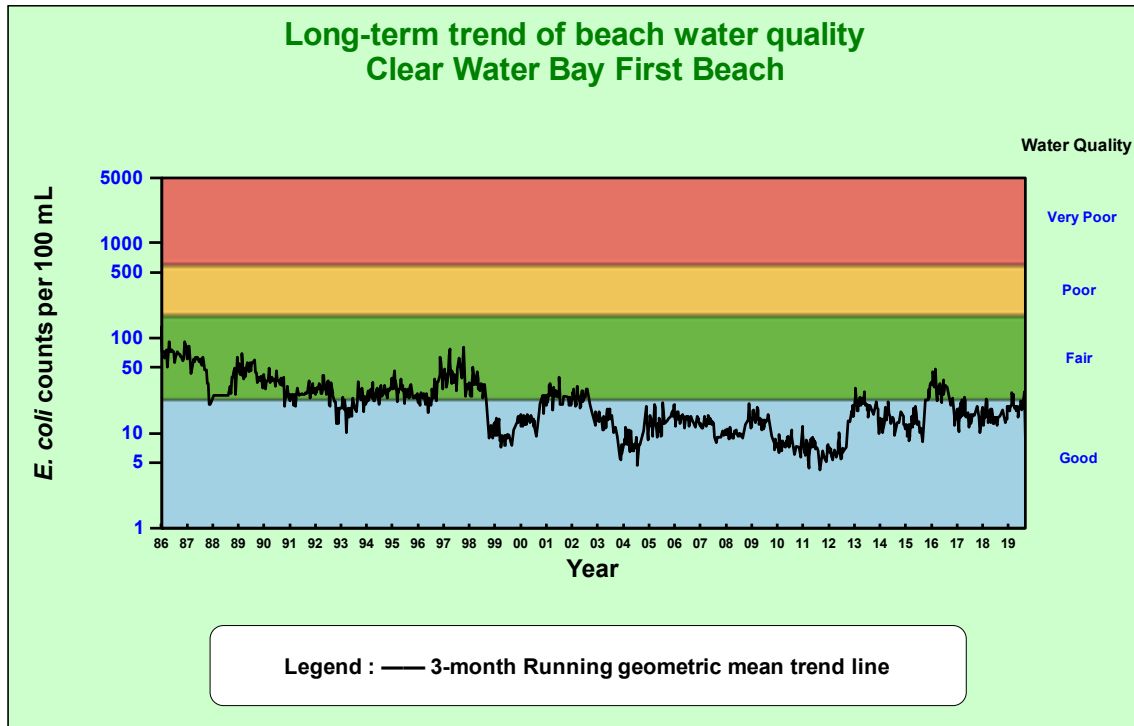


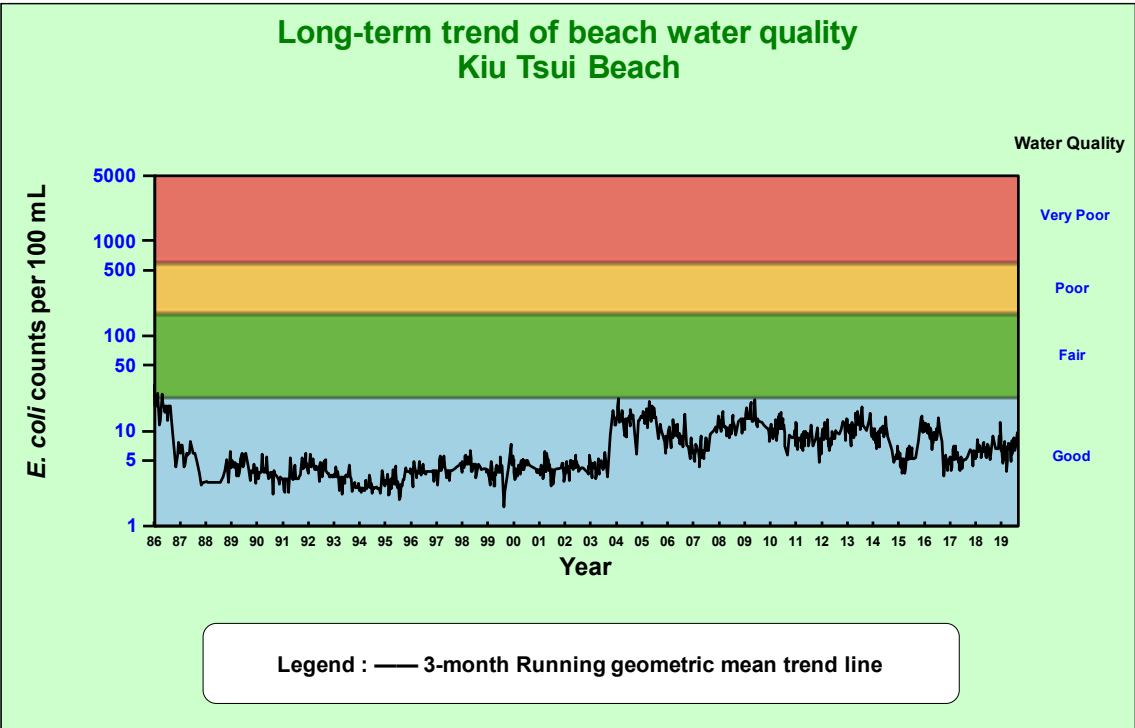
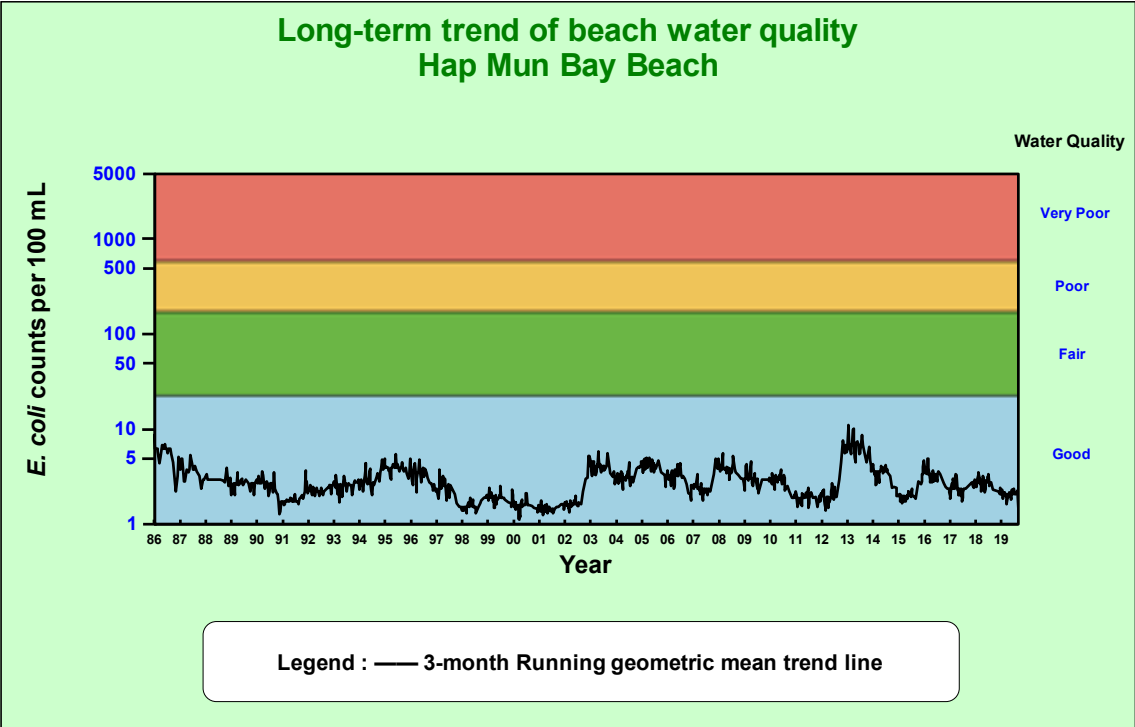


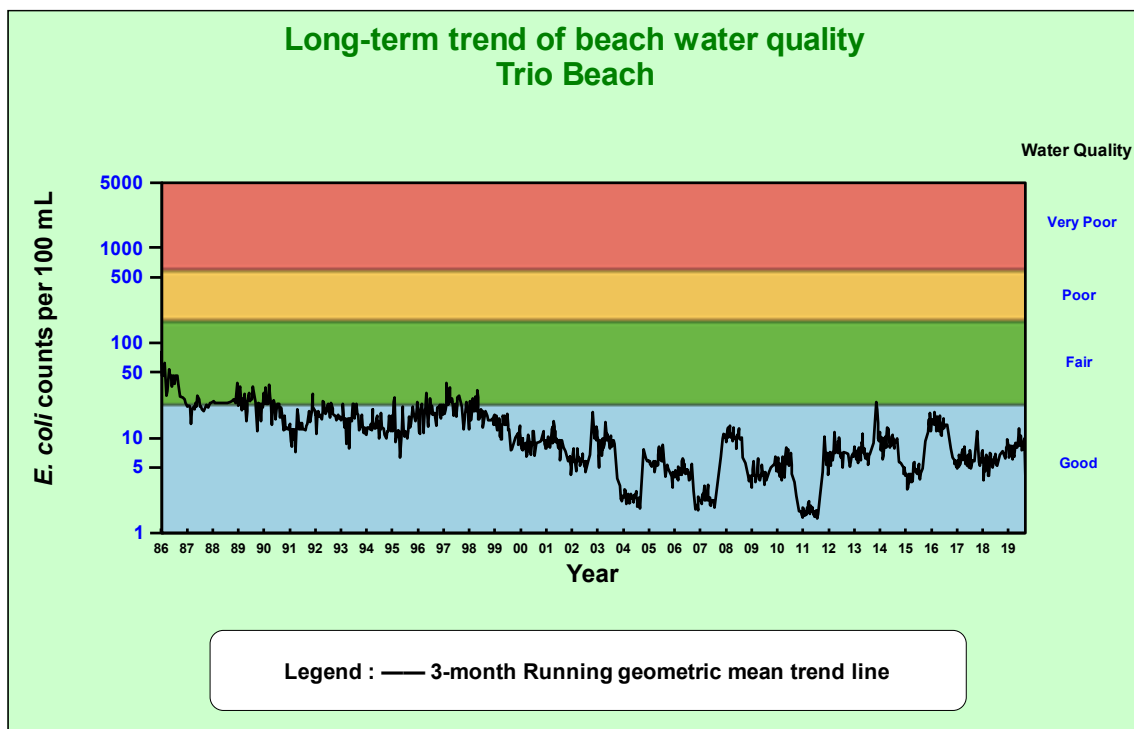
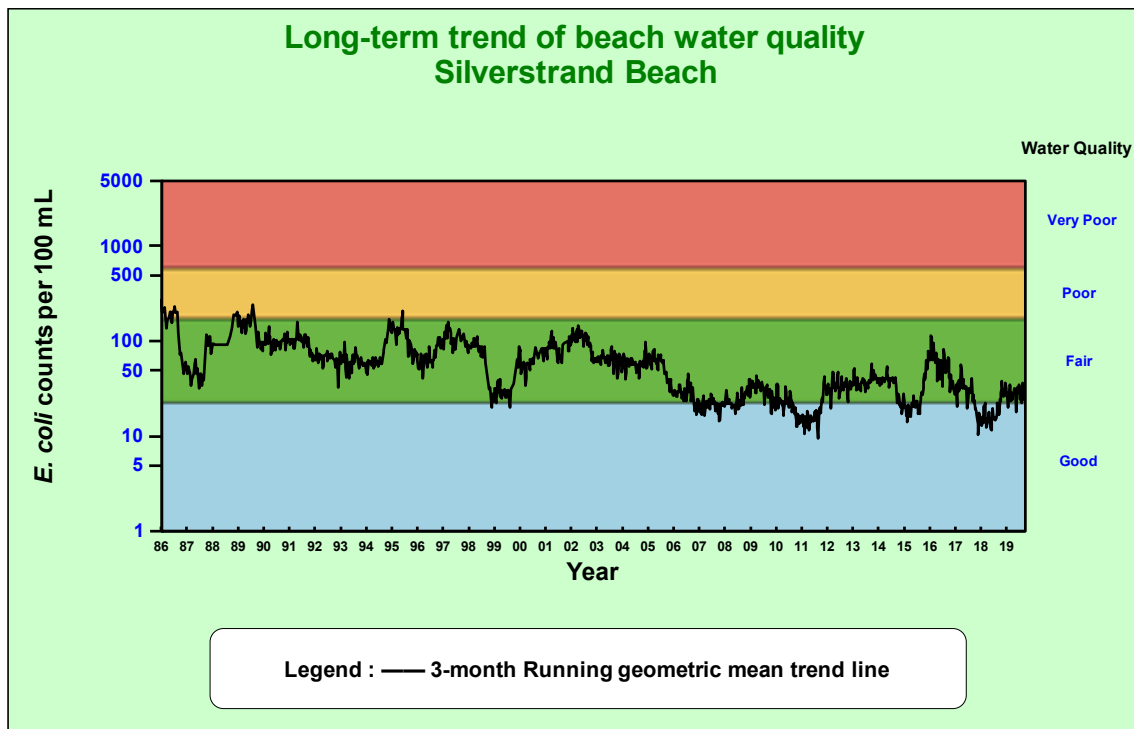




## Sai Kung District



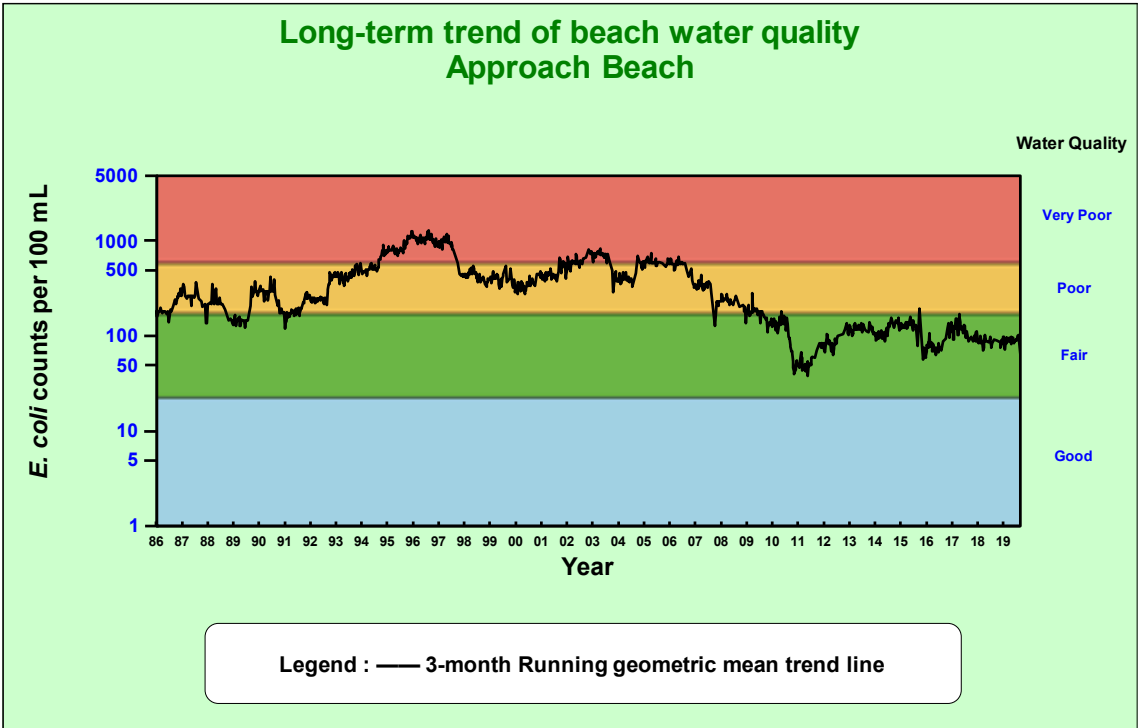
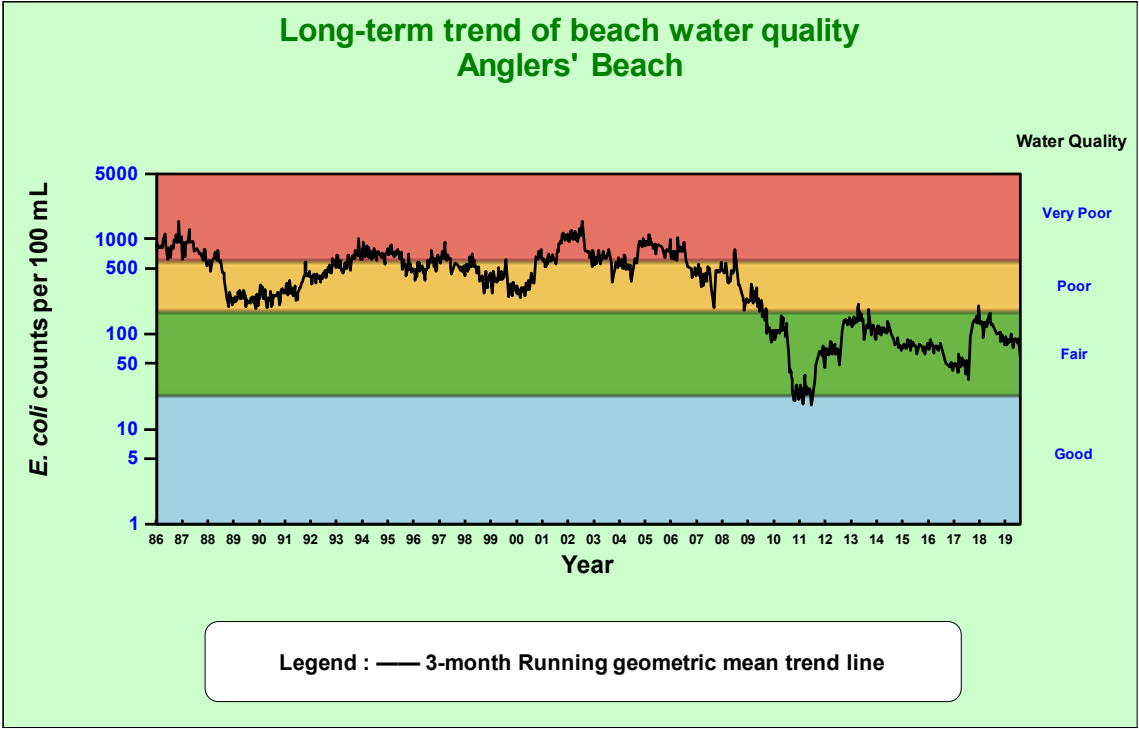


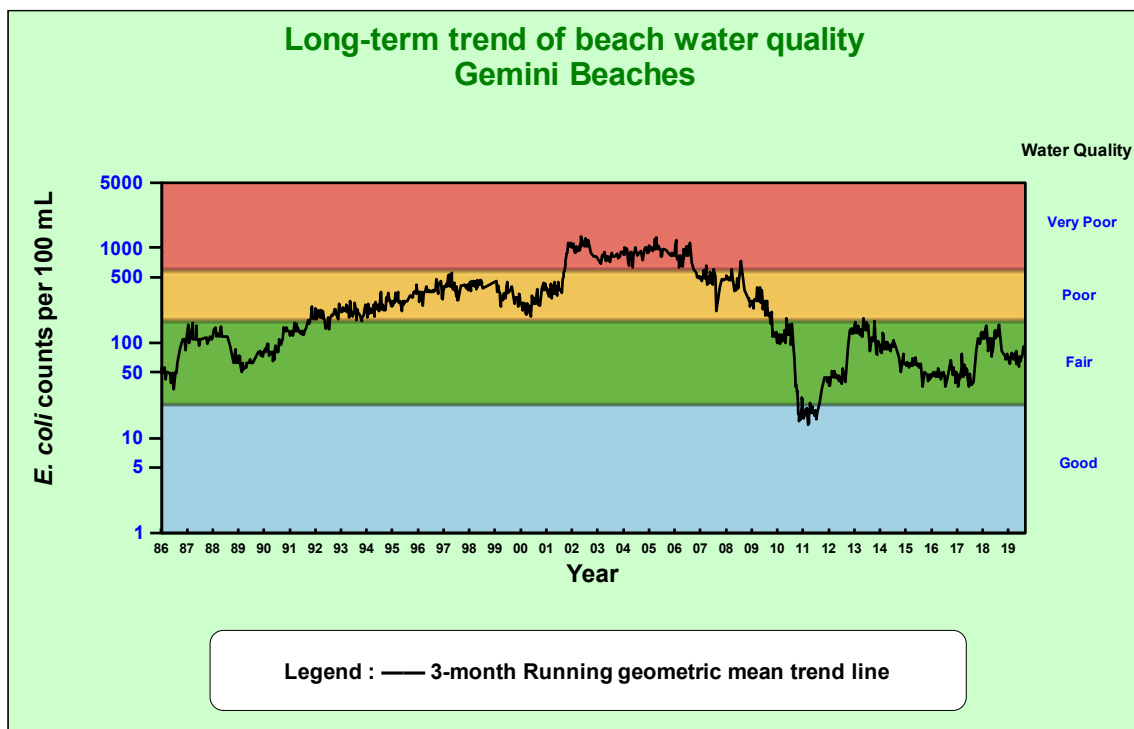
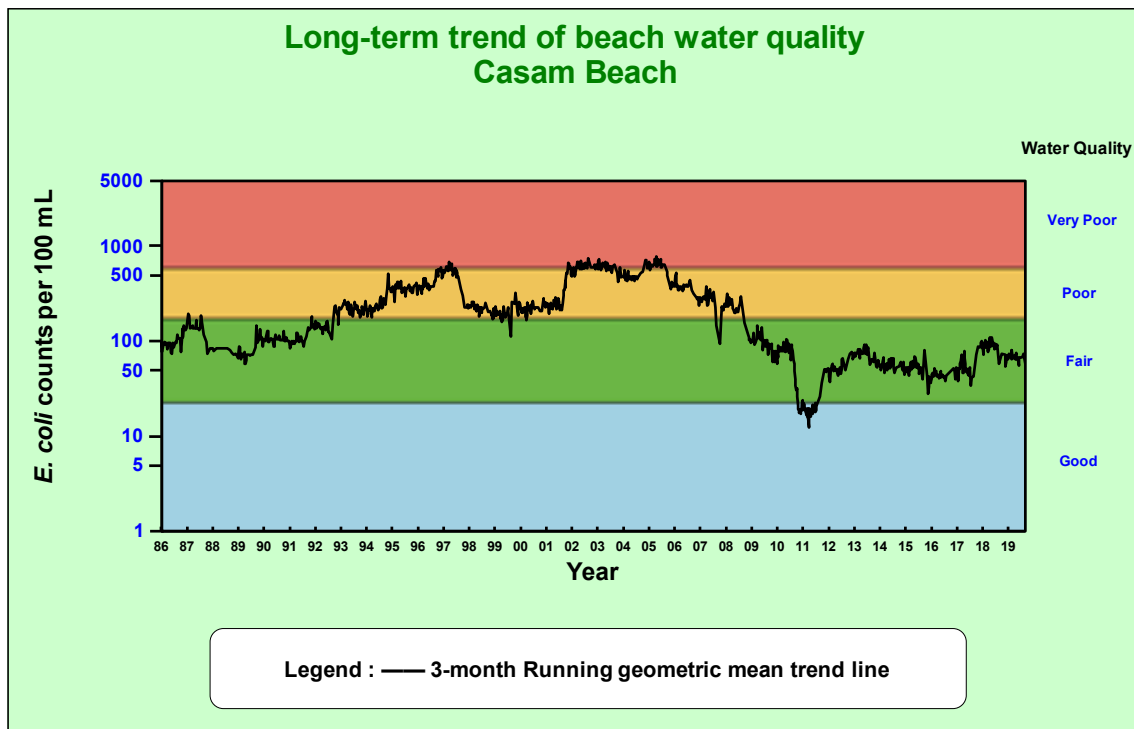


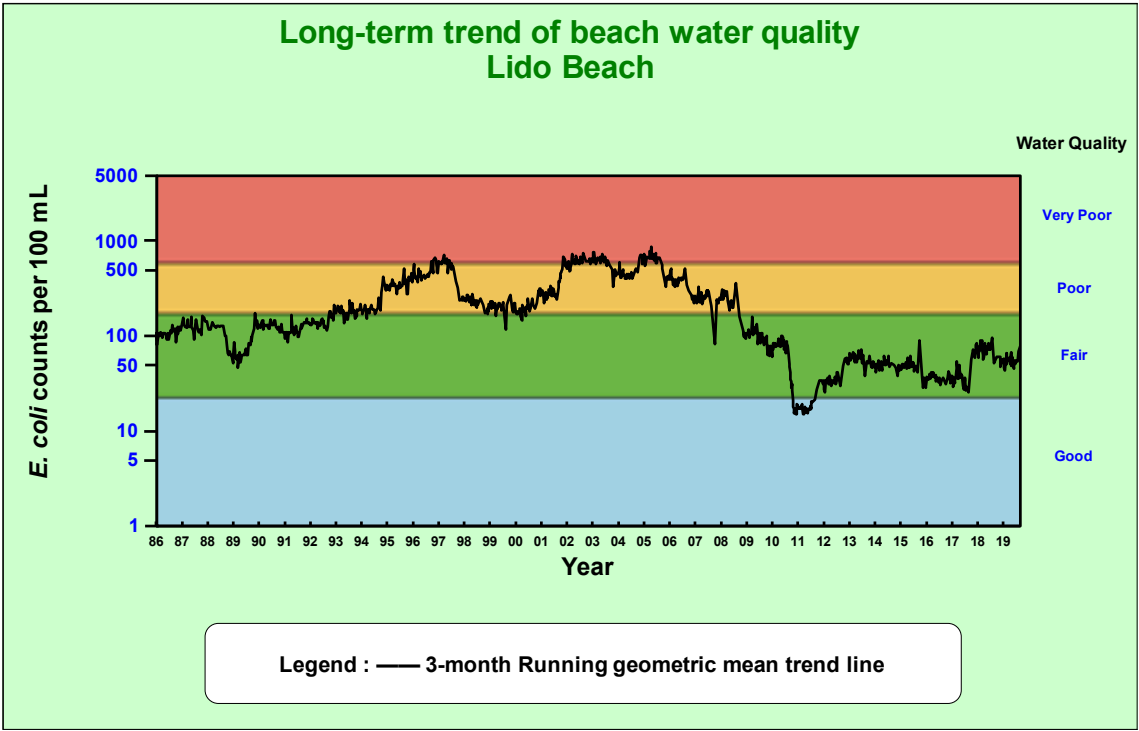
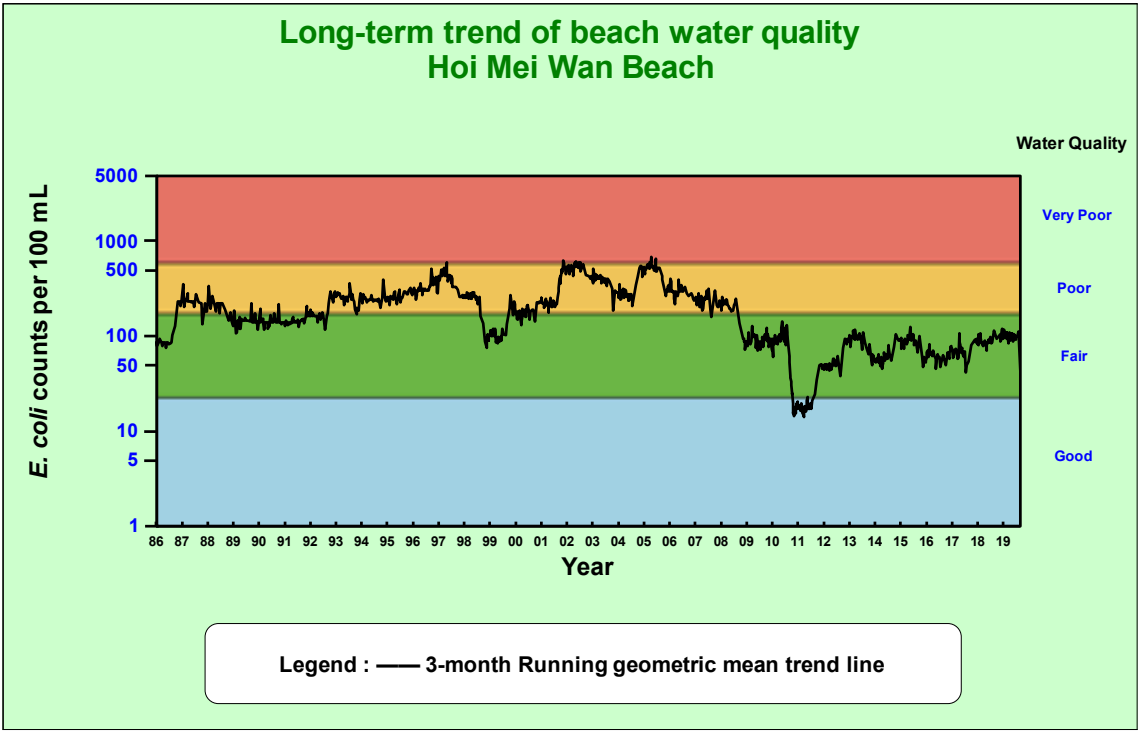


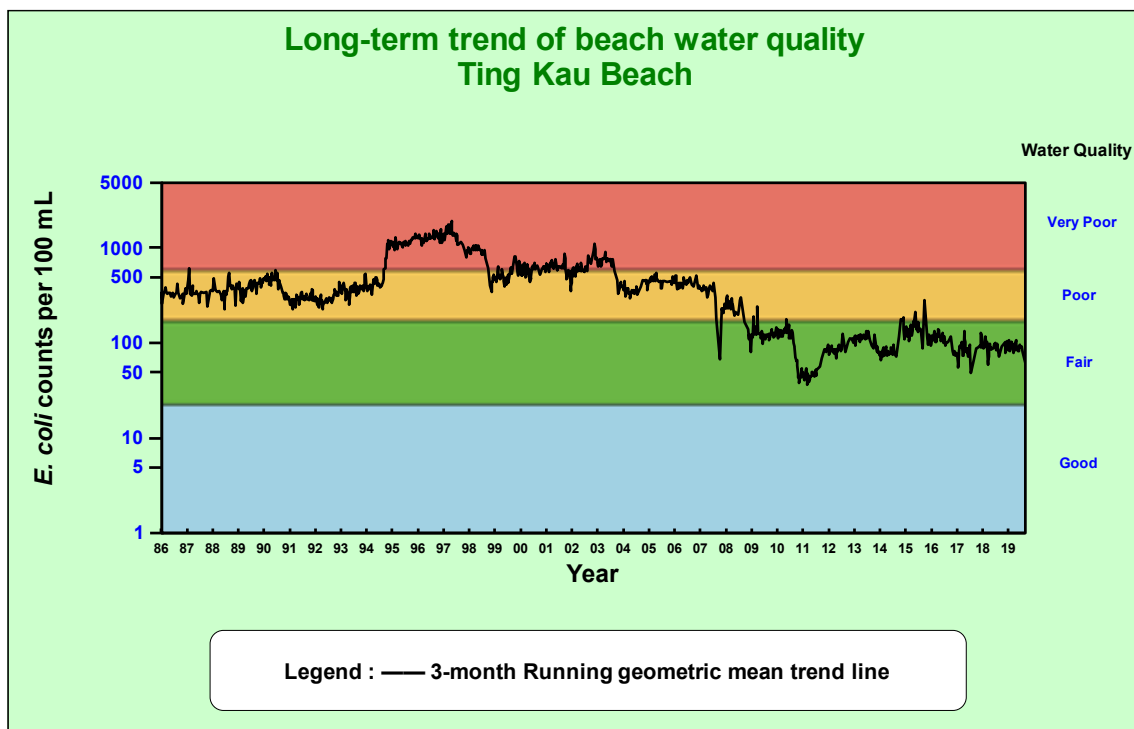
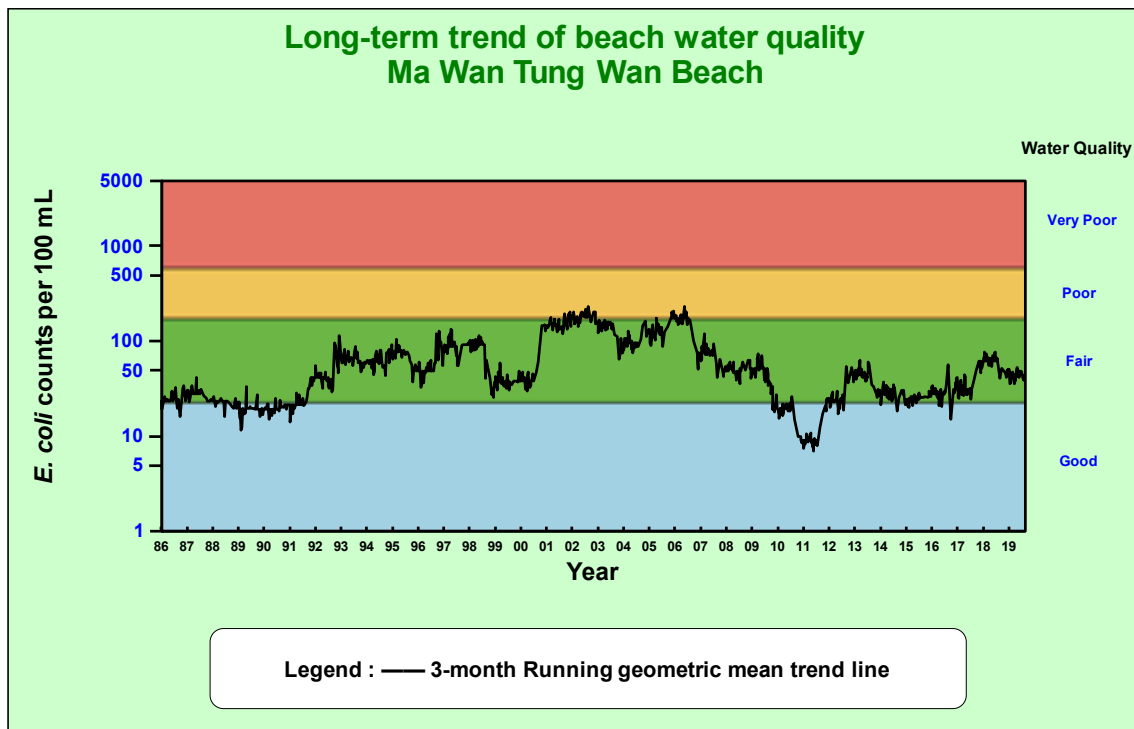
Tsuen Wan District

Appendix D



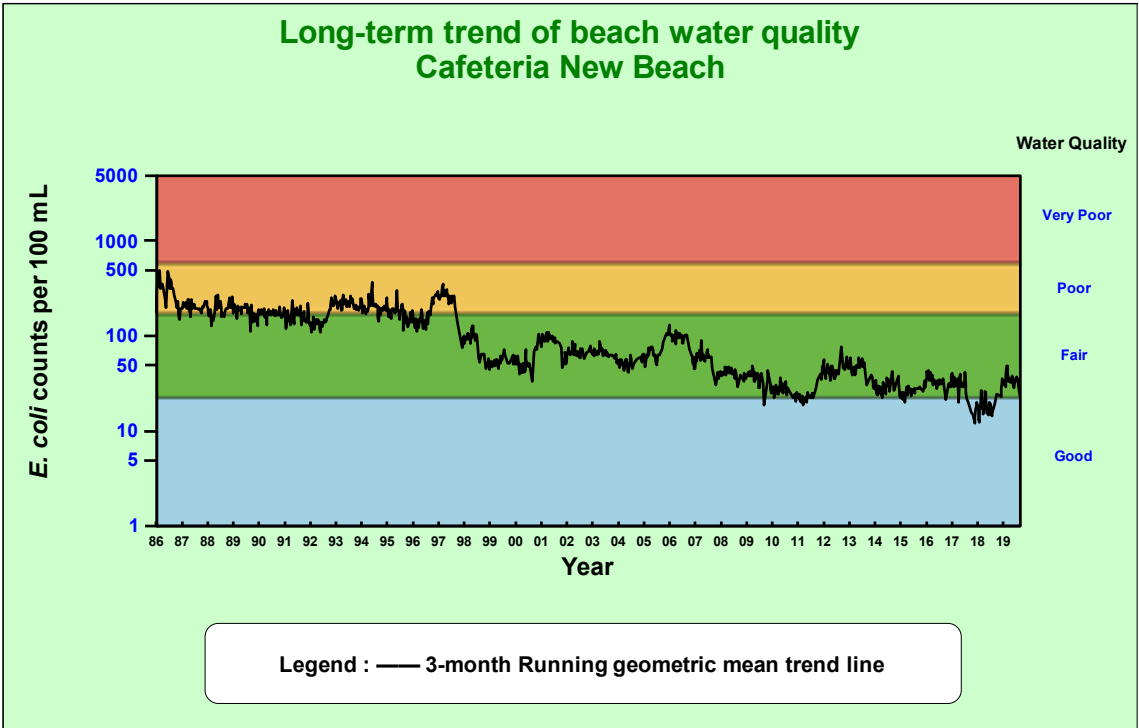
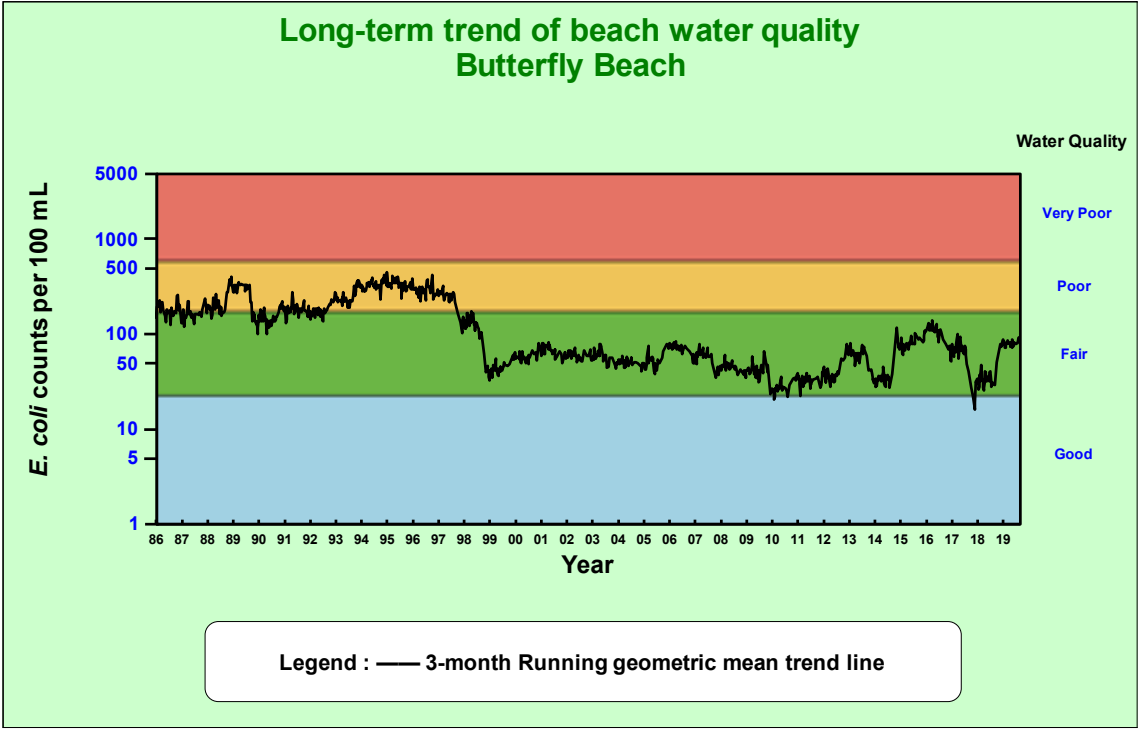


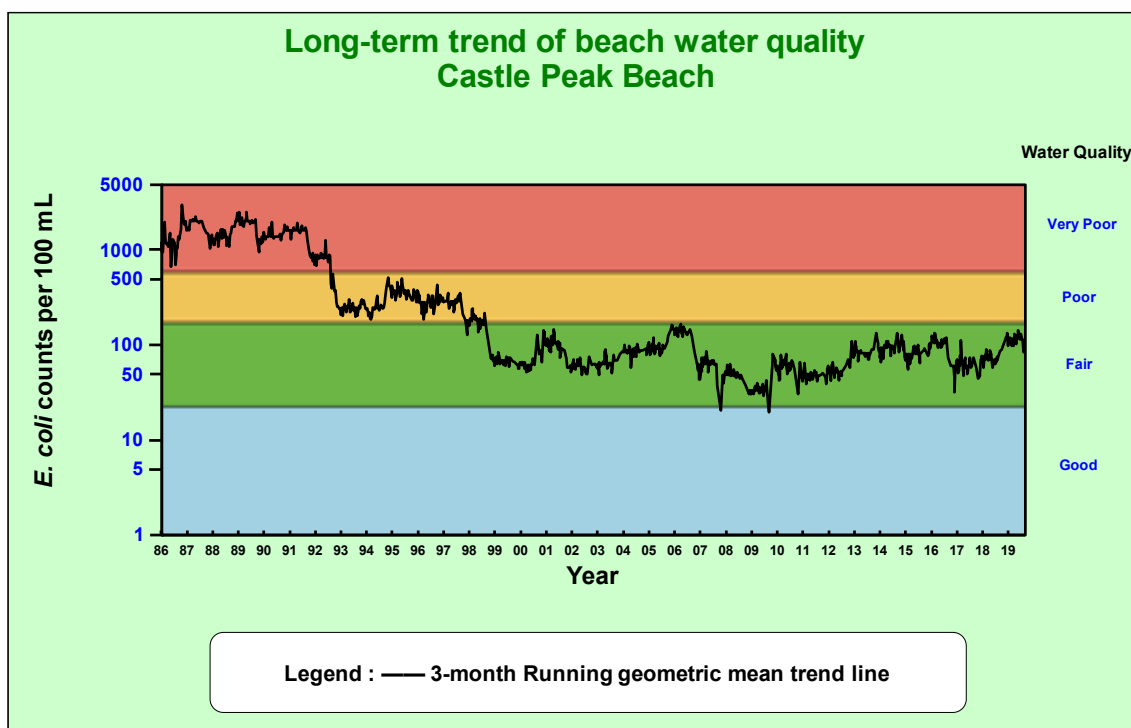
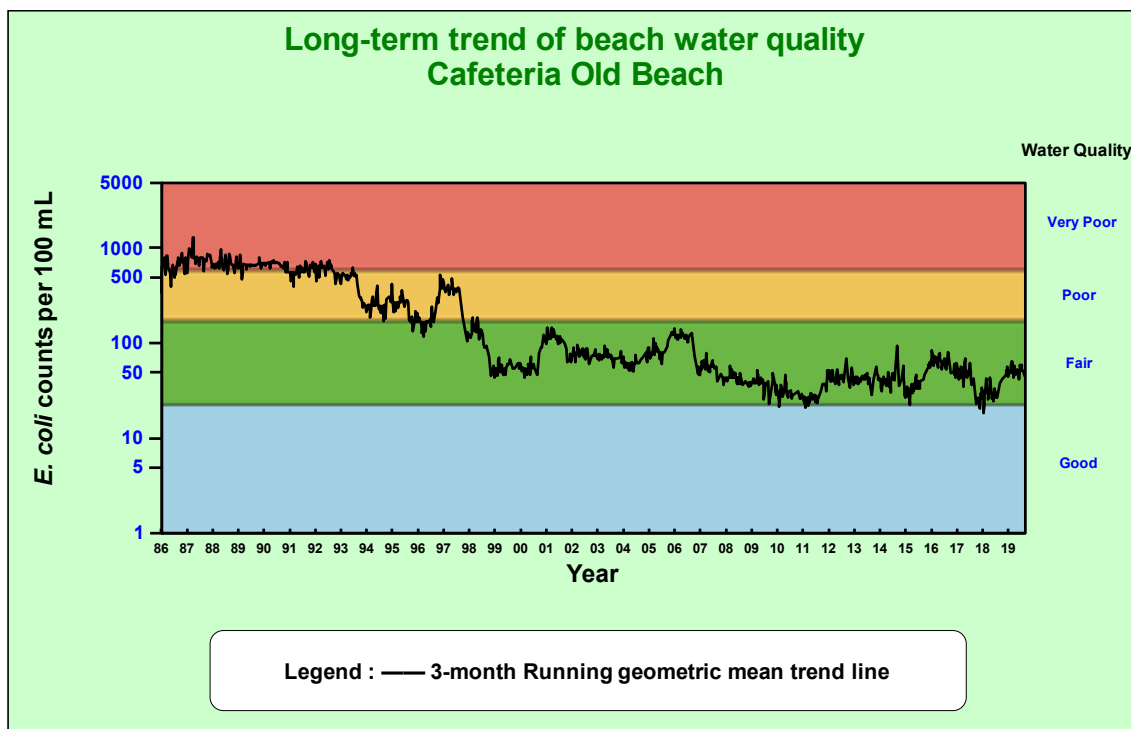


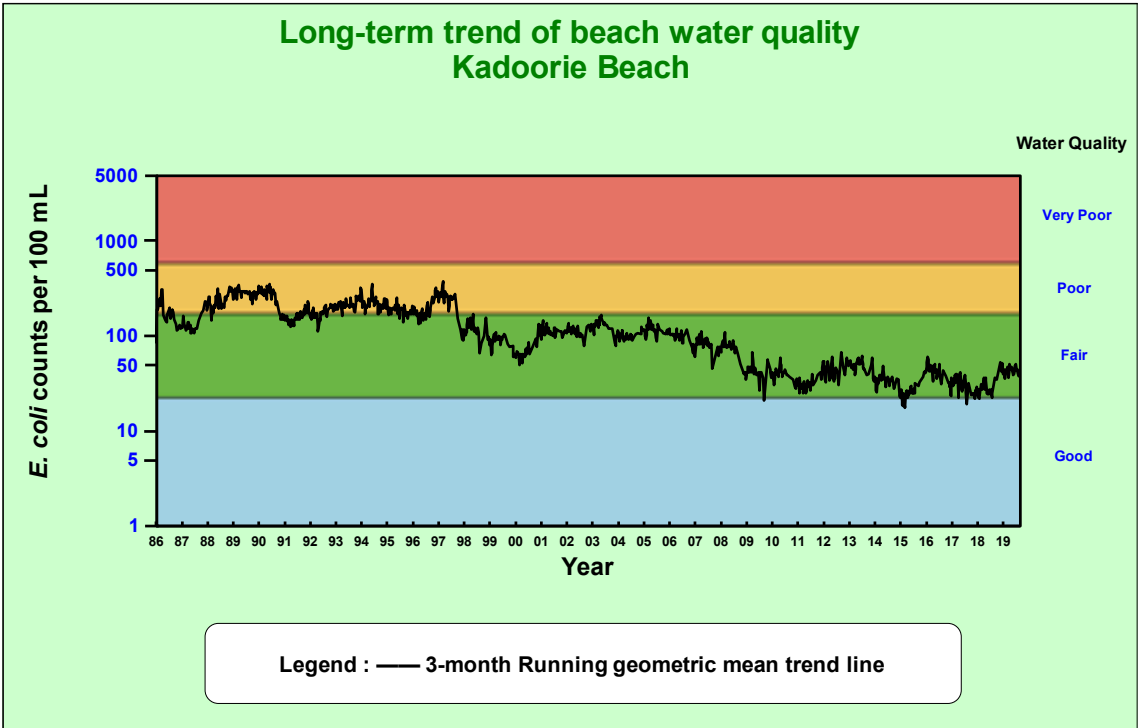
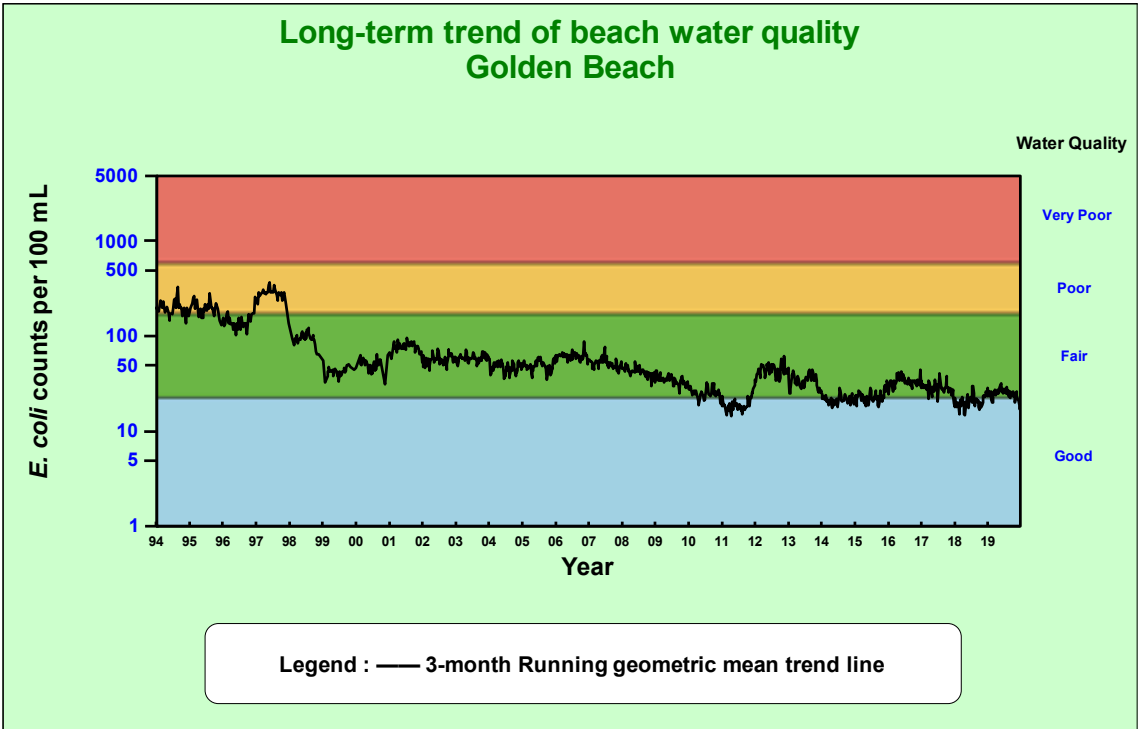




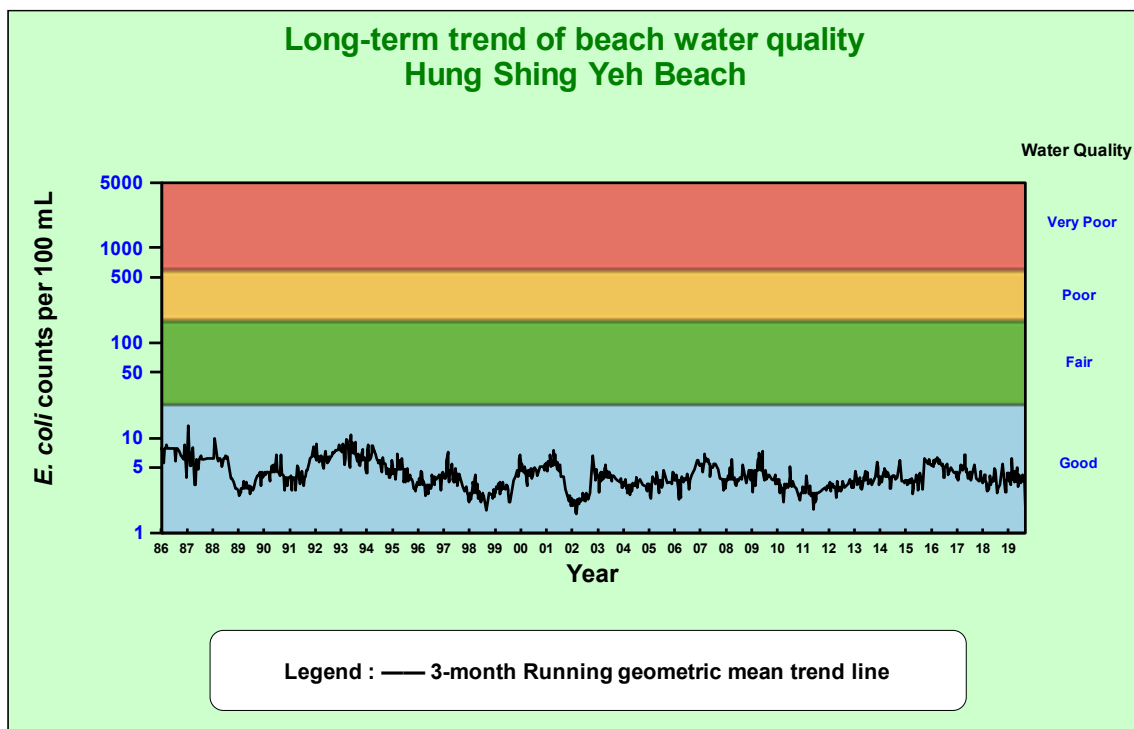
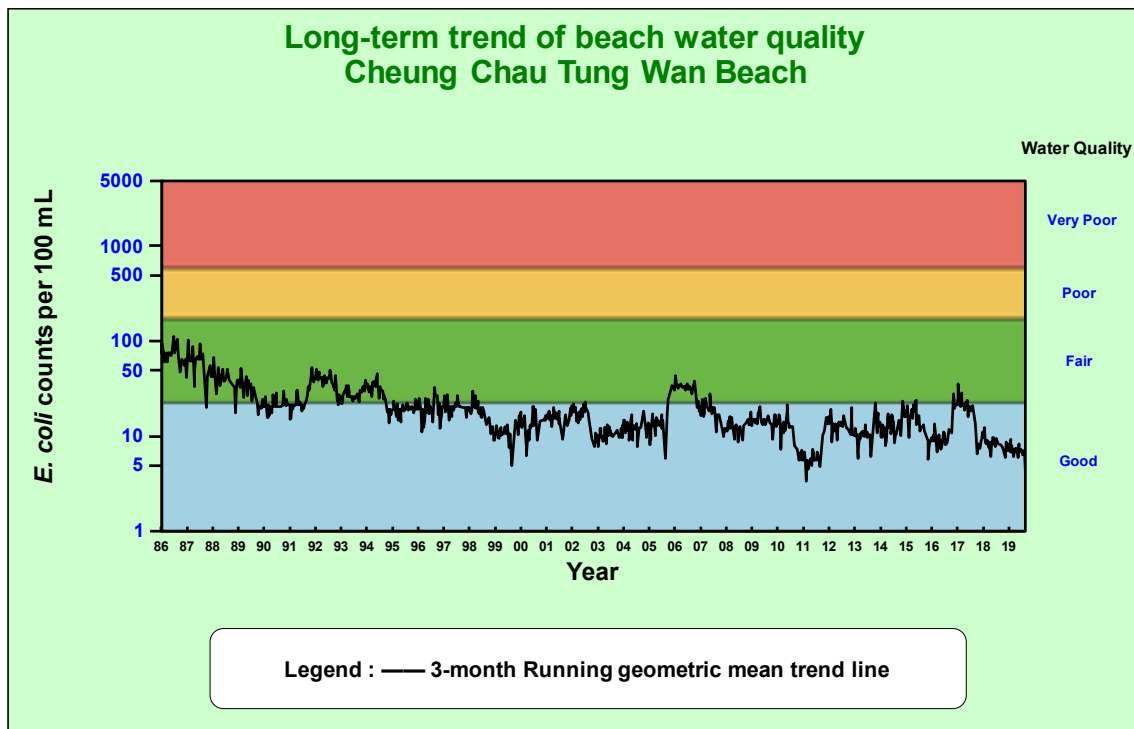
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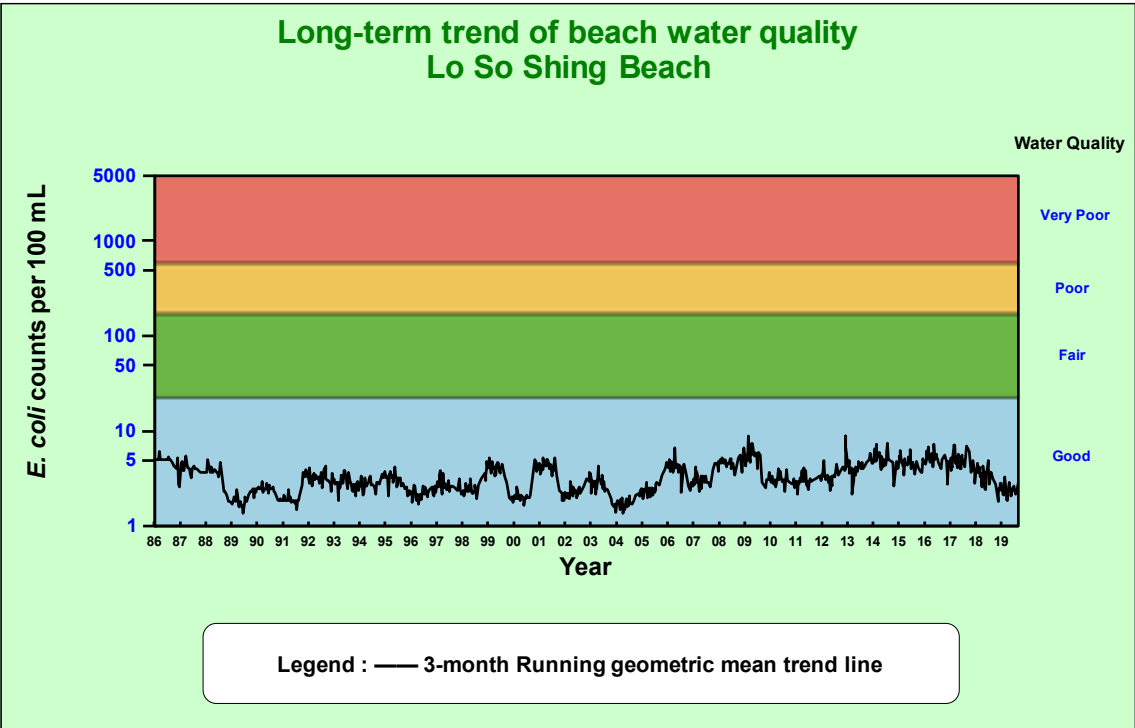
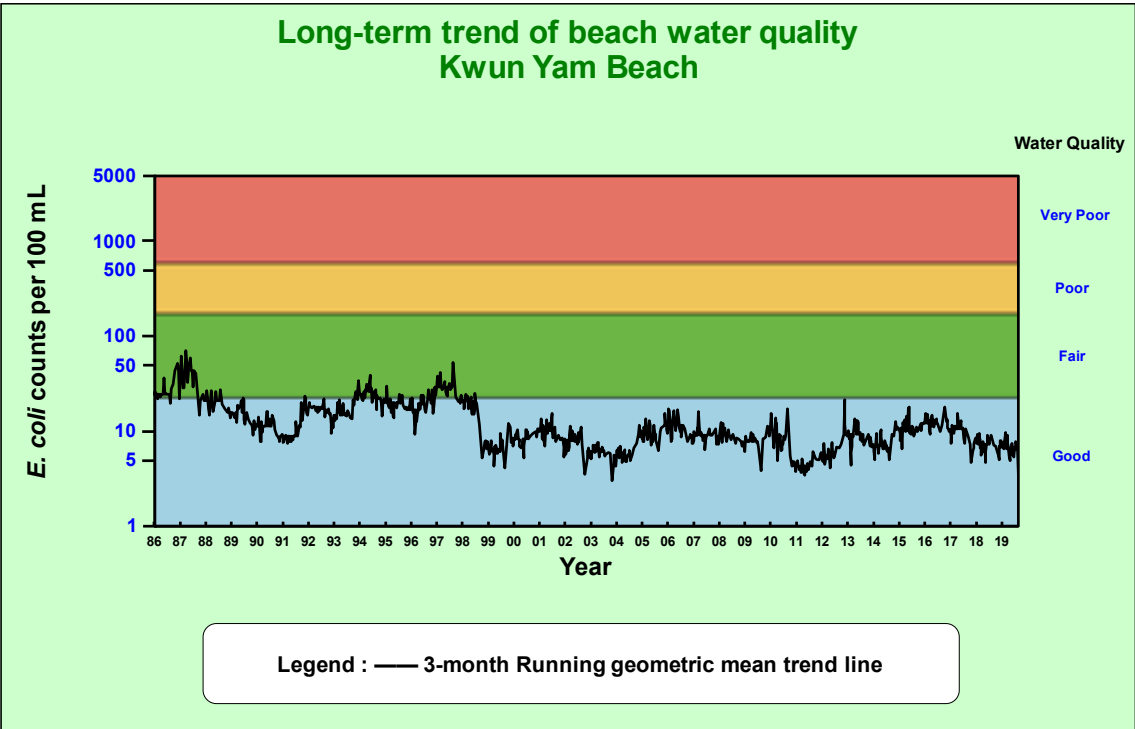


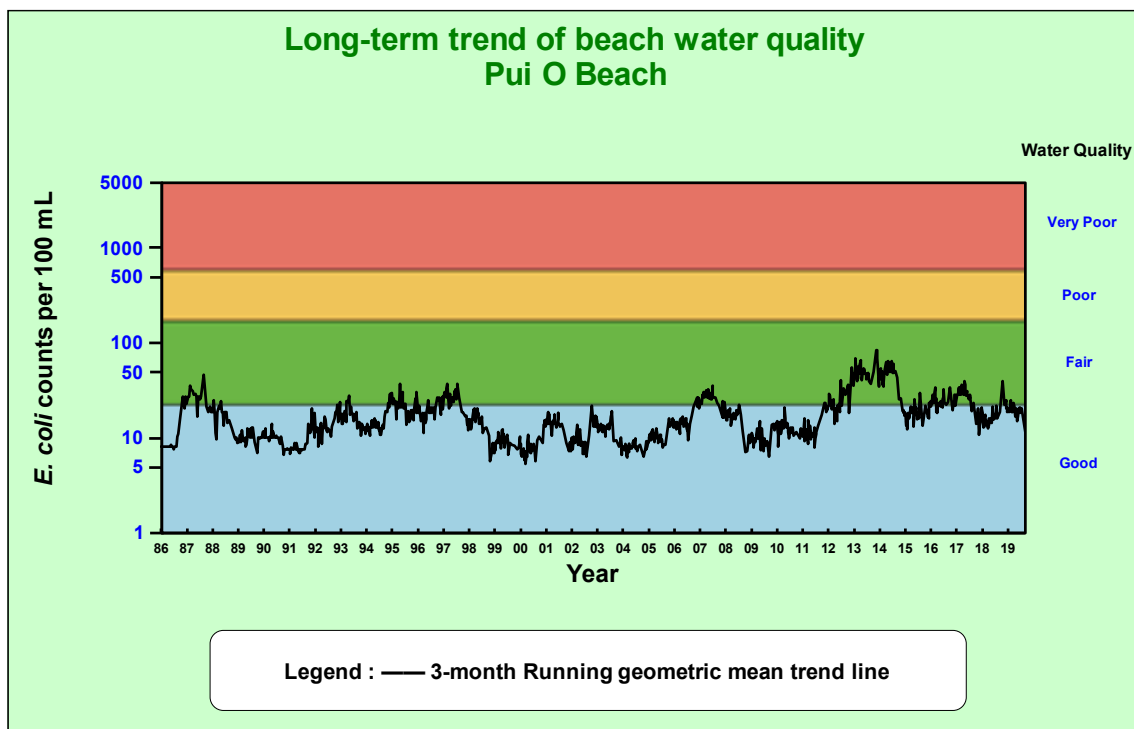
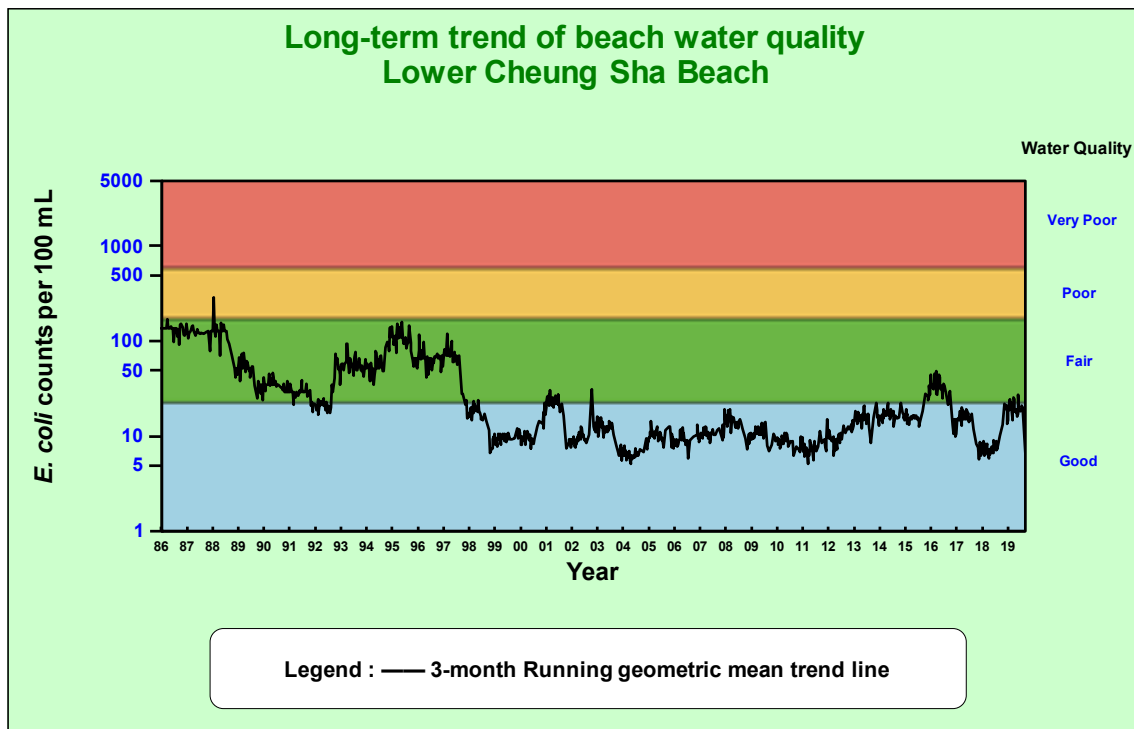


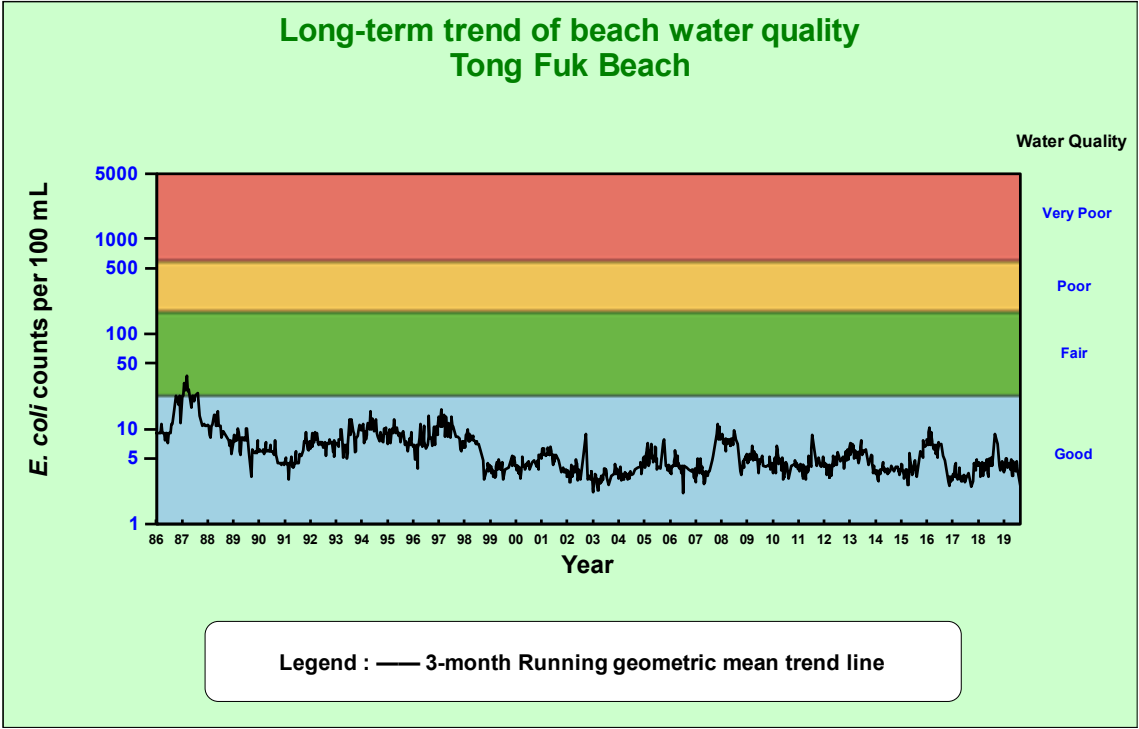
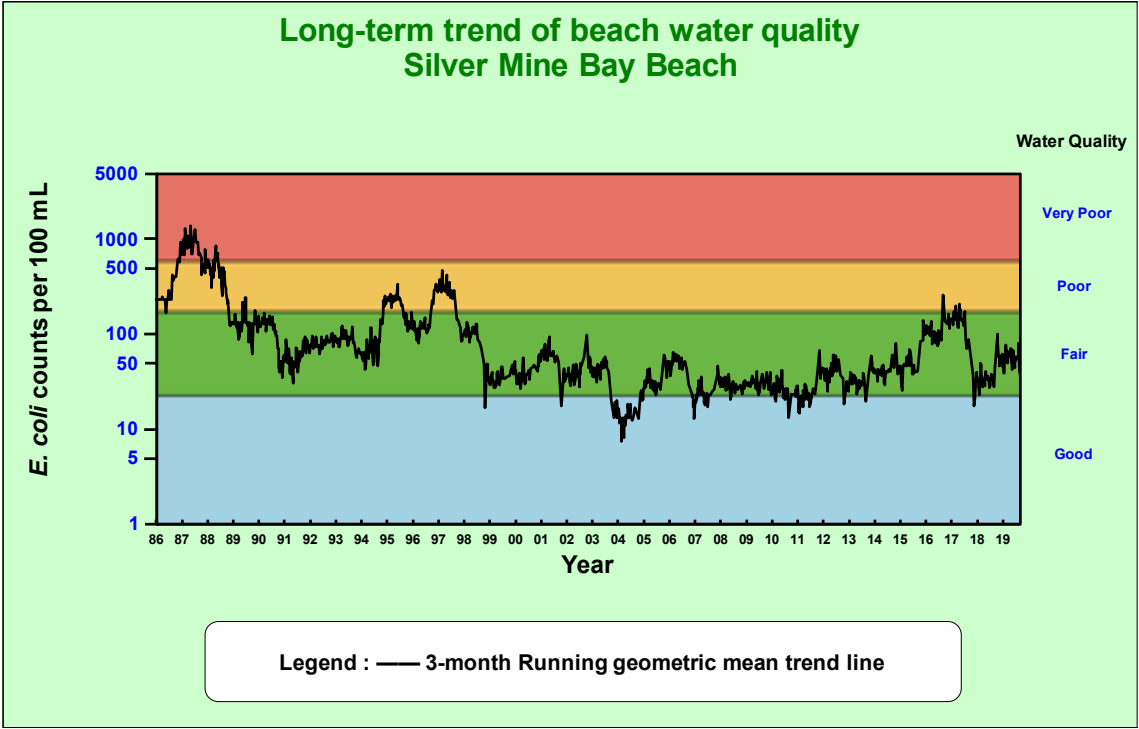
## Islands District

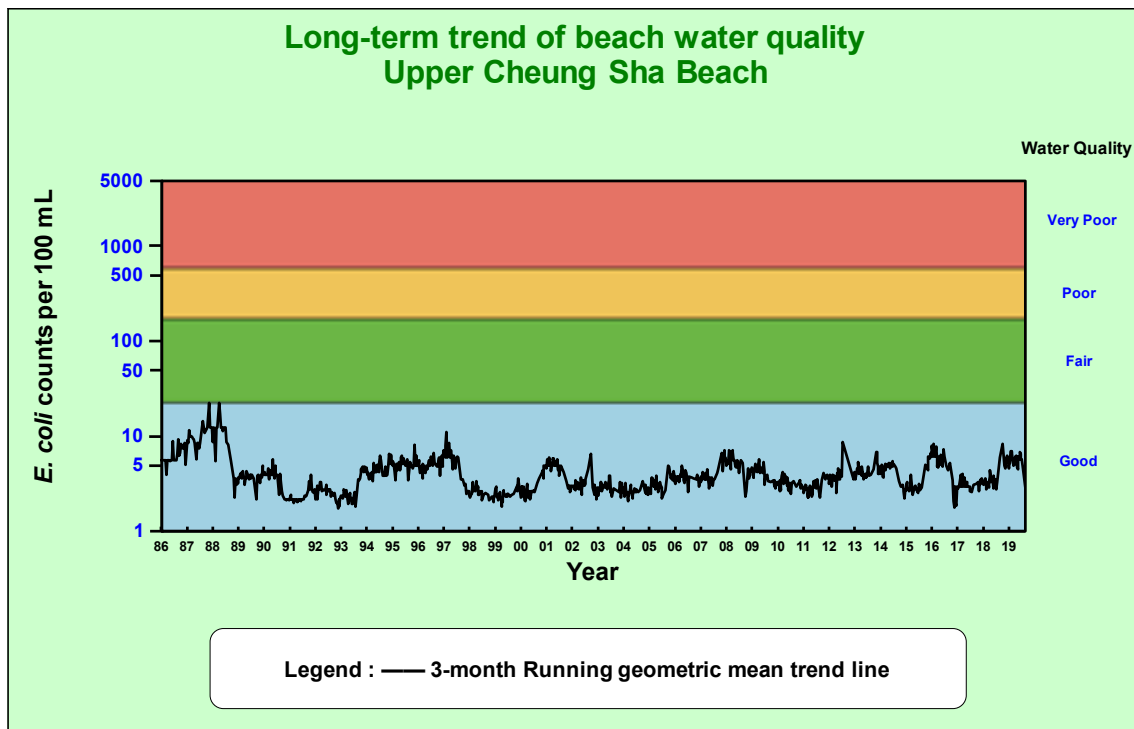














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