

香港泳灘水質 2022

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



▲ Beaches under blue sky and white cloud



Introduction

Hong Kong has plentiful scenic beaches frequently visited by local residents and tourists. To safeguard the health of beachgoers, a pristine and safe swimming environment has to be maintained at these beaches.

The Environmental Protection Department (EPD) has implemented a comprehensive Beach Water Quality Monitoring Programme since its establishment in 1986. This report summarizes the beach monitoring data collected in the bathing season of 2022, and the corresponding bacteriological Water Quality Objective (WQO) compliance rate for bathing waters.



▲ Public enjoying sea bathing in a scorching summer day



Beach Water Quality in Hong Kong 2022

The prevailing COVID-19 pandemic in early 2022 had led to temporary beach closure between mid-March and April. As the epidemic situation had stabilised, the EPD immediately resumed the beach water quality monitoring work once beaches reopened on 5 May 2022. During each field visit, the EPD staff would inspect the beach conditions, collect water samples for laboratory analysis of faecal bacteria indicator (*Escherichia coli* (*E. coli*)), and conduct in-situ measurement of physicochemical water quality parameters including dissolved oxygen, pH, salinity, temperature and turbidity.



▲ In-situ measurement and water sampling at Tai Po Lung Mei Beach



▲ Analysis of beach water samples at EPD's Environmental Microbiology Laboratory



▲ Water quality information displayed at a gazetted beach

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



Annual Beach Ranking in 2022

All 42 gazetted beaches complied with the bacteriological WQO for bathing beaches in 2022. When compared to 2021, the number of beaches ranked as “Good” has slightly decreased from 30 beaches (or 71%) to 27 (or 64%), and the number of beaches ranked as “Fair” has increased from 12 (or 29 %) to 15 (or 36%). No beaches were in the “Poor” or “Very Poor” ranking.



▲ The popular Repulse Bay Beach has maintained a “Good” annual ranking since 1990

During heavy or consecutive rainstorms, the pollutants deposited on land could possibly be washed off to the sea, causing temporarily fluctuations in the bacteriological water quality of the beaches. While the total rainfall recorded during the 2022 bathing season (1876 mm) was 16% lower than that in 2021 (2220 mm) for the same period, there were frequent heavy rainstorms in the territory since early May, resulting in large fluctuations of *E. coli* at some beaches and hence a slight decrease in the number of “Good” beaches.



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

In 2022, beaches in the Sai Kung District continued to have better water quality when compared to other districts, with all its 6 beaches receiving a “Good” annual ranking. On the other hand, among the 12 beaches in the Southern District, 11 of them maintained as “Good” ranking, and Big Wave Bay Beach remained the same ranking of “Fair” as in last year. In the Islands District, the ranking for Lower Cheung Sha Beach changed from “Good” to “Fair, which was the same as Silver Mine Bay Beach. The remaining 7 beaches in the district continued to attain a “Good” ranking.

Of the 6 beaches in the Tuen Mun District, 4 received a “Fair” ranking, while 2 other beaches, namely Cafeteria New Beach and Golden Beach, maintained a “Good” ranking as in last year.



▲ Long coastline along Cafeteria Old Beach, Cafeteria New Beach and Golden Beach



All the 8 beaches in the Tsuen Wan District maintained a “Fair” ranking as in last year. Since the gradual re-opening of the Tsuen Wan beaches between 2011 and 2014 due to the marked water quality improvement achieved after the completion of sewerage works in the beach hinterland and commissioning of the disinfection facilities of the Harbour Area Treatment Scheme in March 2010, relatively stable water quality suitable for swimming at these beaches has been observed.

Tai Po Lung Mei Beach has been open for public use since June 2021, and is the only gazetted beach in the Tai Po District. This beach continued the “Good” ranking as in last year.



▲ Clear water and fine sand at Tai Po Lung Mei Beach

In 2022, the EPD also monitored the water quality of 2 non-gazetted beaches, including the popular Discovery Bay in Lantau Island and the sandy New Kiu Tsui adjacent to Kiu Tsui Beach in Sai Kung. Both beaches continued to attain a “Good” ranking, on par with last year.



Weekly Beach Grading in 2022

In parallel with the annual ranking, the EPD also issues weekly grading of gazetted beaches during their usual opening periods to keep beachgoers informed of more recent changes in beach water quality. The latest weekly grading information is disseminated through different channels including press releases issued before every weekend, the EPD's beach thematic website, beach water quality hotline, GeoInfo Map of the GovHK website and noticeboards at the beaches. An overview of the weekly grading status of beaches in different districts in 2022 is provided below.

All the 6 beaches in the Sai Kung District continued to perform well in terms of their weekly grading, and on average attained a “Good” grading for 85% of time without a “Poor” or “Very Poor” grading recorded in the bathing season.

In 2022, the 10 beaches in the Southern District generally possessed decent water quality and achieved mostly “Good” or “Fair” weekly grading. Among them, 3 beaches (including South Bay Beach, St. Stephen’s Beach and Stanley Main Beach) maintained a “Good” grading for over 90% of time in the bathing season. Big Wave Bay Beach, Chung Hom Kok Beach and Middle Bay Beach were once rated as “Very Poor” on one or two occasions during and after heavy rainstorms.



▲ Big Wave Bay Beach is one of the hotspots for surfing





▲ Silverstrand Beach opens year round for swimmers

Most of the 9 gazetted beaches in the Islands District had pristine water quality. In particular, Lo So Shing Beach and Upper Cheung Sha Beach maintained a “Good” weekly grading for the entire bathing season. No beaches in the district were graded “Very Poor” in the bathing season.

Between mid-May and early August when frequent heavy rainstorms were recorded, there was fluctuation of the beach water quality in Tuen Mun District and Tsuen Wan District. After mid-August when the weather got better with less rainfall, relatively stable water quality with continuous improvement at these beaches could be observed, suggesting that the fluctuation in beach water quality was temporary and weather-associated.

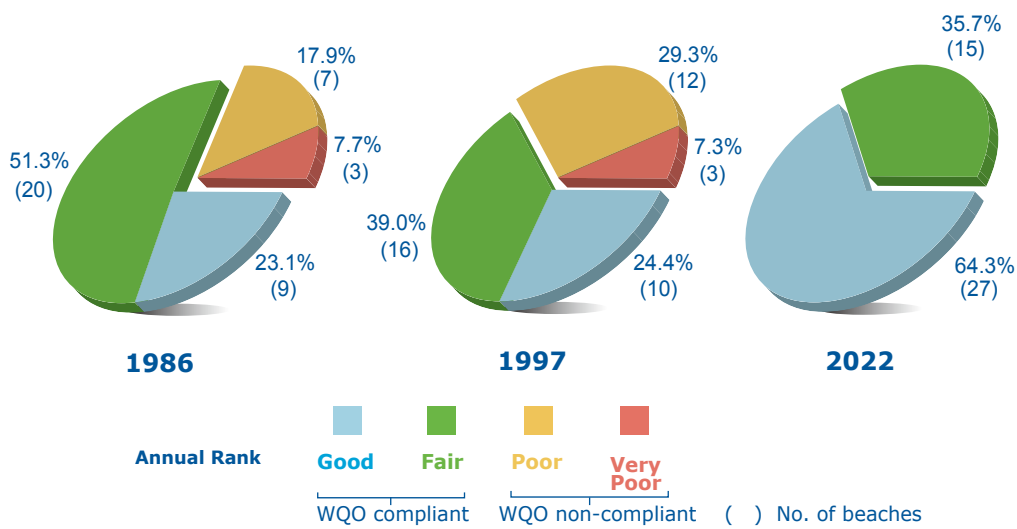
Lung Mei Beach in the Tai Po District was mostly graded “Good”, with occasional “Fair” grading observed in between June and early July due to heavy rain.



Water Quality Trend

The satisfying beach water quality in Hong Kong is the outcome of continuous efforts of the Government and stakeholders in the past two decades. The compliance rate of Hong Kong beaches with the bacteriological WQO had once deteriorated from 74% in 1986 (29 of 39 beaches) to 63% (26 of 41 beaches) in 1997, and thereafter improved gradually to 100% in 2010. Since then, the record of full compliance has already maintained for 13 consecutive years.

Comparison of annual beach ranking of gazetted beaches in 1986, 1997 and 2022



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

Looking back, many beaches were closed in the 1980s (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 the WQO compliance rate in the mid-1990s due to population growth associated with new town development. To solve the problem, the Government invested extensive resources to implement various pollution abatement measures, including enforcement of environmental legislation (e.g. Water Pollution Control Ordinance and Livestock Waste Control Scheme), extension of sewerage network, provision of new sewage treatment facilities and upgrading of existing facilities. In particular the Harbour Area Treatment Scheme, a core sewerage infrastructure project in Hong Kong, has brought marked improvement in beach water quality. The major water quality improvement measures implemented in the past are summarized in the following table.



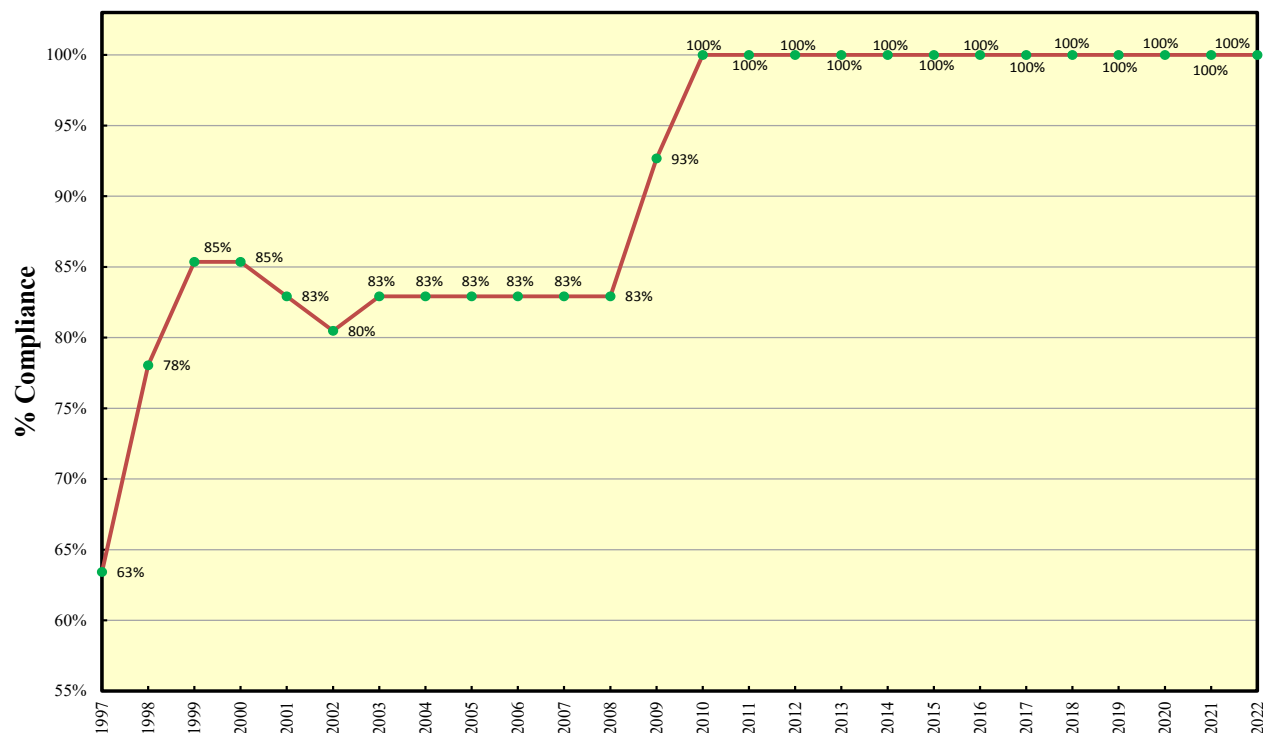
Major improvement measures since the implementation of beach water quality monitoring programme in 1986	
1986 – 1990	Beaches with Improved Water Quality
<ul style="list-style-type: none"> ✱ Implementation of the Livestock Waste Control Scheme under the Waste Disposal (Livestock Waste) Regulation. ✱ Declaration of the Southern Water Control Zone (WCZ) under the Water Pollution Control Ordinance (WPCO) for legislative enforcement. ✱ Interception and diversion of polluted water from storm drains at beaches in Southern District. 	<p>Most beaches, particularly Silver Mine Bay Beach</p> <p>Southern beaches</p> <p>Southern beaches</p>
1991 – 1995	
<ul style="list-style-type: none"> ✱ Declaration of the North Western WCZ under the WPCO for legislative enforcement. ✱ Diversion of polluted storm water drains away from Castle Peak Beach. ✱ Provision of public sewers for So Kwun Wat and Sam Shing Estate. ✱ Commissioning of Stanley Sewage Treatment Works (STW). 	<p>Tuen Mun beaches</p> <p>Castle Peak Beach</p> <p>Tuen Mun beaches</p> <p>Stanley Main Beach</p>
1996 – 2000	
<ul style="list-style-type: none"> ✱ Full implementation of the WPCO in all WCZs. ✱ Commissioning of the Shek O Sewage Screening Plant and diversion of polluted storm water drains at Shek O Village . ✱ Completion of all major works under the Southern Sewerage Master Plan. ✱ Commissioning of the 2 km long Pillar Point sewage submarine outfall. 	<p>All beaches</p> <p>Shek O Beach</p> <p>Southern beaches</p> <p>Tuen Mun beaches</p>
2001 – 2005	
<ul style="list-style-type: none"> ✱ Completion of Harbour Area Treatment Scheme Stage 1. ✱ Provision of public sewers in the Silverstrand area. ✱ Full commissioning of the Sham Tseng STW. 	<p>Big Wave Bay, Shek O and Rocky Bay Beaches</p> <p>Silverstrand Beach</p> <p>Beaches along the Tsuen Wan coast</p>
2006 – 2022	
<ul style="list-style-type: none"> ✱ Commissioning of the Disinfection Facilities at the Stonecutters Island STW. ✱ Extension of the public sewerage network to the beach hinterland along Castle Peak Road. ✱ Full commissioning of all facilities of the Harbour Area Treatment Scheme (HATS) Stage 2A. 	<p>All Tsuen Wan beaches</p> <p>Beaches along the Tsuen Wan coast</p> <p>Beaches along the Tsuen Wan coast</p>



Beach Water Quality Forecast System – New Development

All gazetted beaches in Hong Kong have consistently complied with the bacteriological WQO established based on swimming-associated health risk. To further enhance its service for the general public, the EPD also proactively develops and makes use of advanced smart technology to supplement the conventional beach water quality monitoring. To this end, the EPD is going to launch a new Beach Water Quality Forecast System in the bathing season of 2023. With the new system and service, the public could handily acquire the latest daily beach water quality forecast through the EPD’s thematic website and a user-friendly mobile app, facilitating early itinerary planning of water activities. Details of the forecast system and the roll out schedule will be announced in the second quarter of 2023.

Bacteriological WQO compliance rate of gazetted beaches (1997 – 2022)



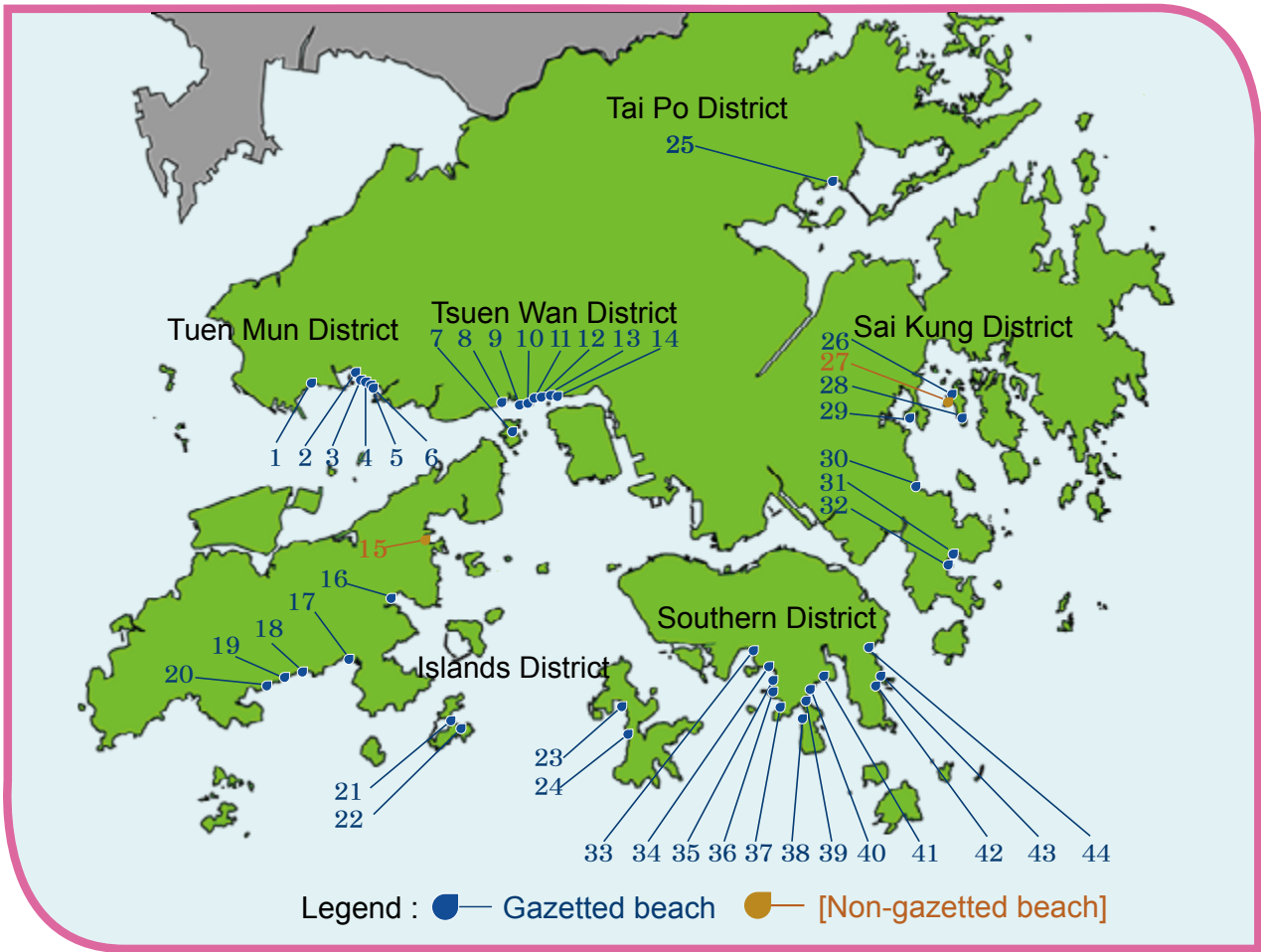
Graphs of water quality trend of all gazetted beaches are provided in Appendix D of this report. The public can also visit the EPD's thematic website on beach water quality (<https://www.epd.gov.hk/epd/beach>) to obtain more details of the beach monitoring, as well as annual beach water quality reports and data published since 2000.



▲ Fun at beaches



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. Tai Po 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



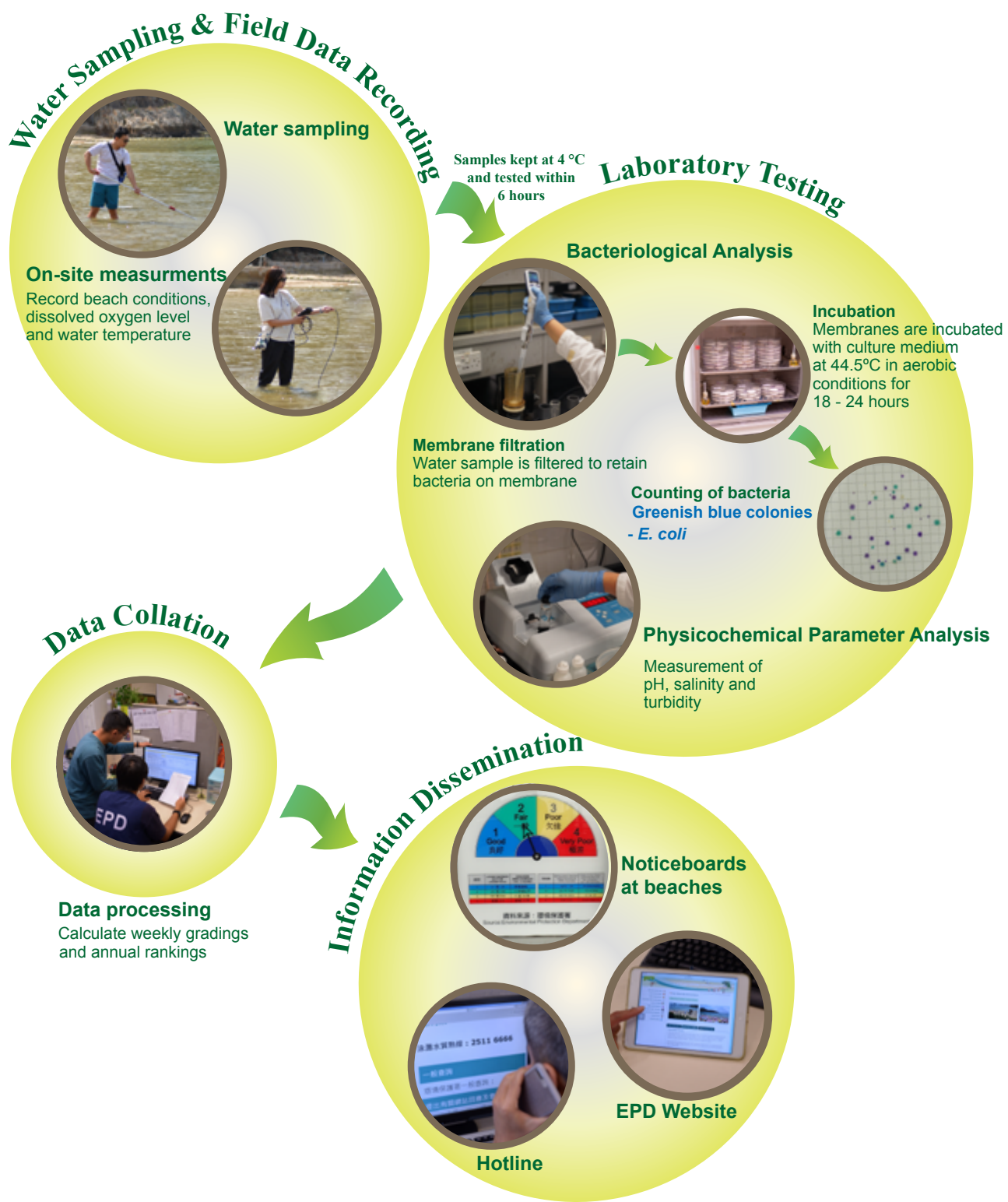
Beach monitoring frequency

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

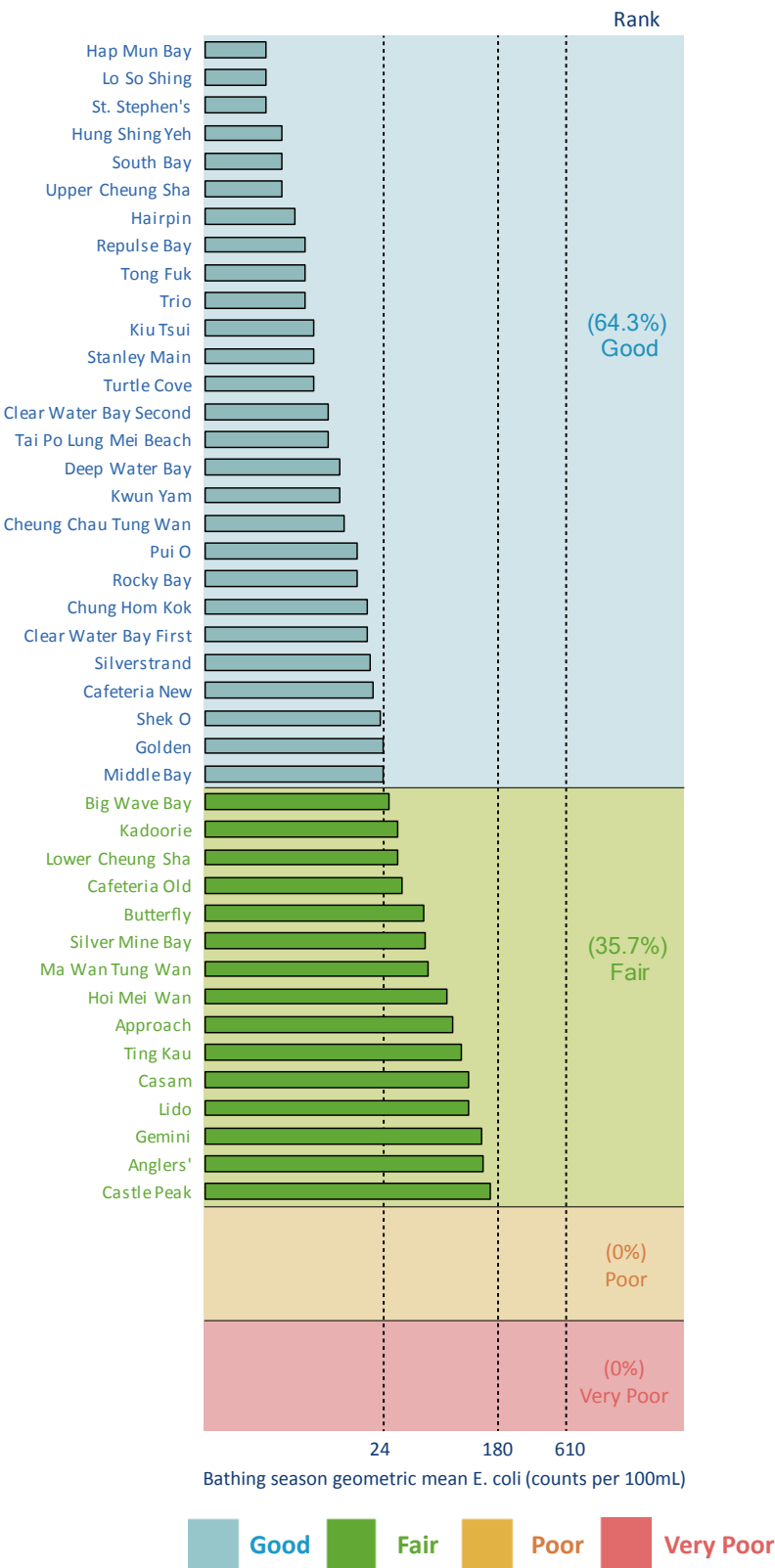
Grade	Beach water quality	<i>E. coli</i> counts per 100 mL*	Minor illness rate** (Cases per 1,000 swimmers)
1	Good	≤24	Undetectable
2	Fair	25-180	≤10
3	Poor	181-610	11-15
4	Very Poor	>610 or last reading >1,600	>15

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

** Skin and gastrointestinal illnesses



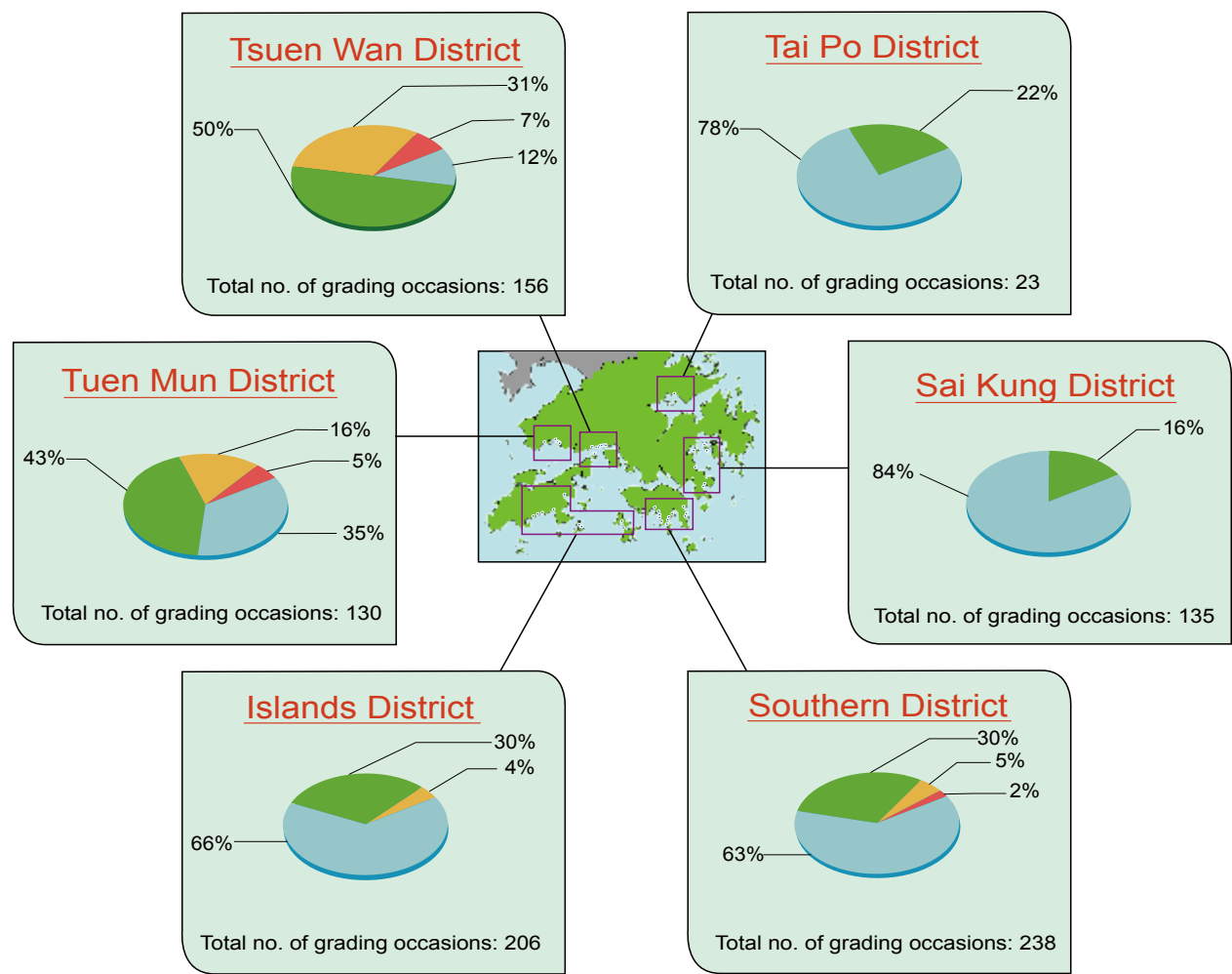
Annual ranking and bathing season geometric mean of *E. coli* levels of Hong Kong's gazetted beaches, 2022



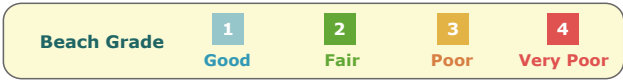
Annual ranking of gazetted beaches at a glance, 2022



Weekly beach grading summary of open gazetted beaches by district, 2022



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



Southern District beaches

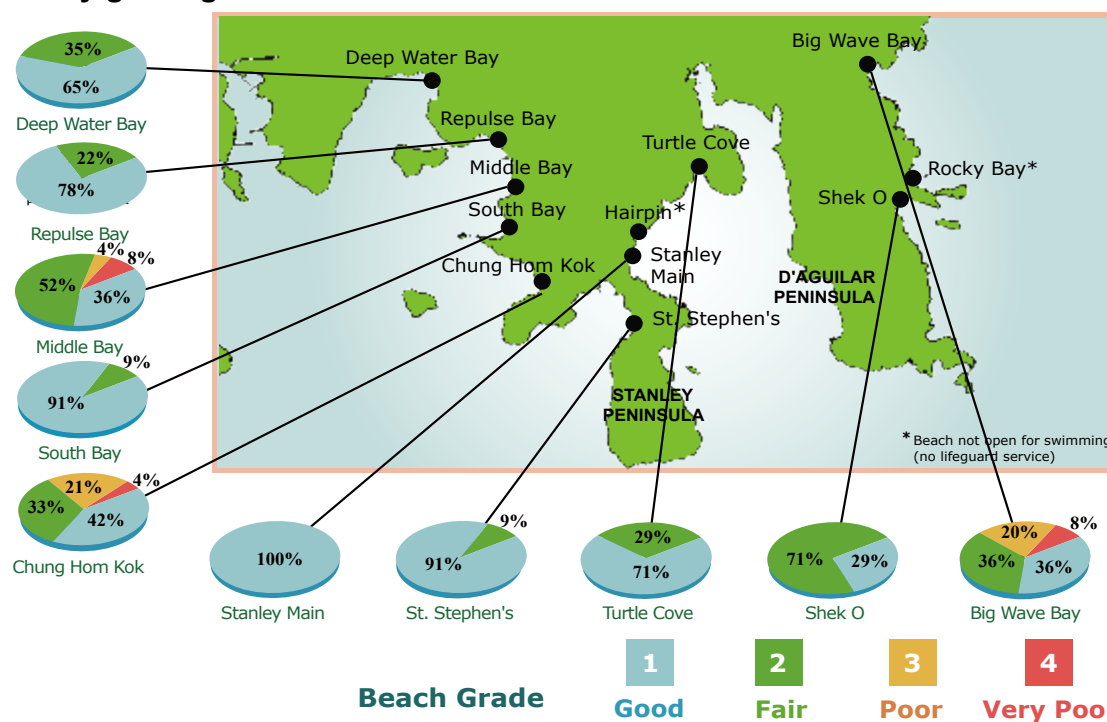
Annual ranking



Annual Rank

Good Fair Poor Very Poor

Weekly grading

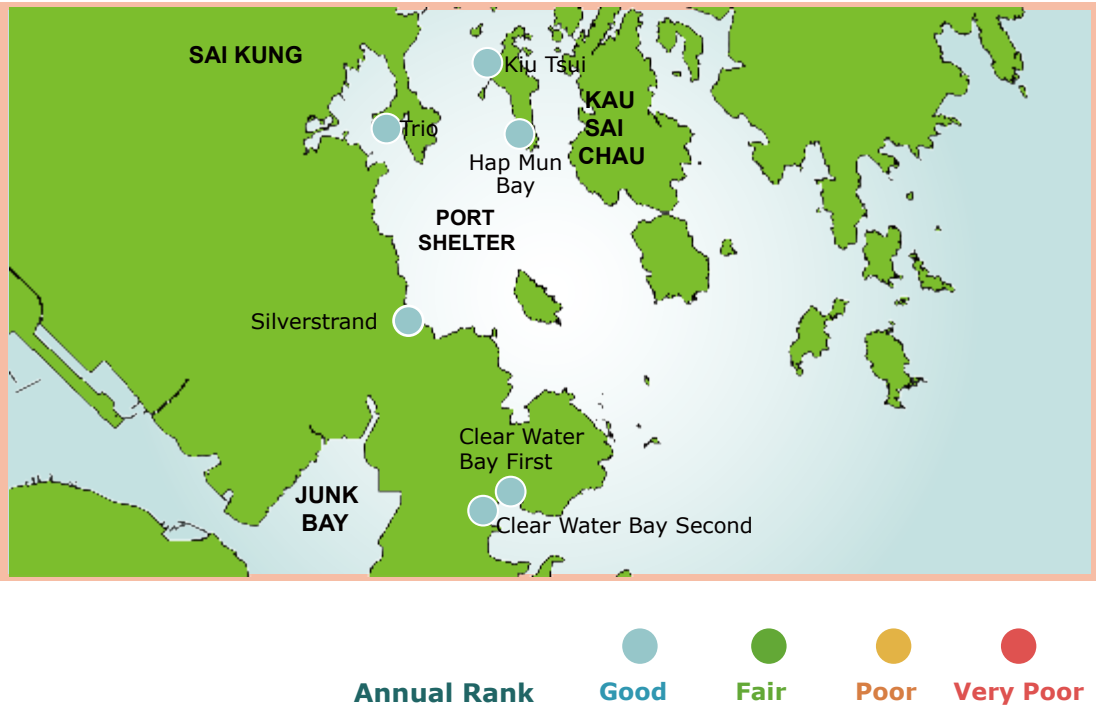


Note: Figures may not add up to 100% due to roundings; "*" Beach not open for swimming. No grading was provided

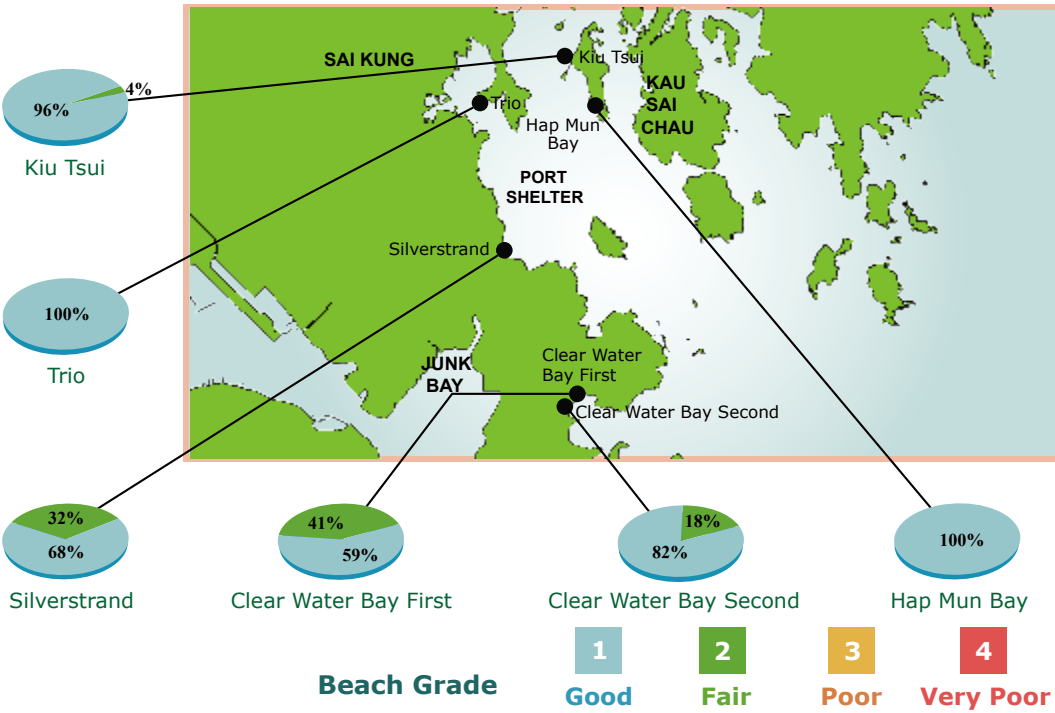


Sai Kung District beaches

Annual ranking



Weekly grading



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

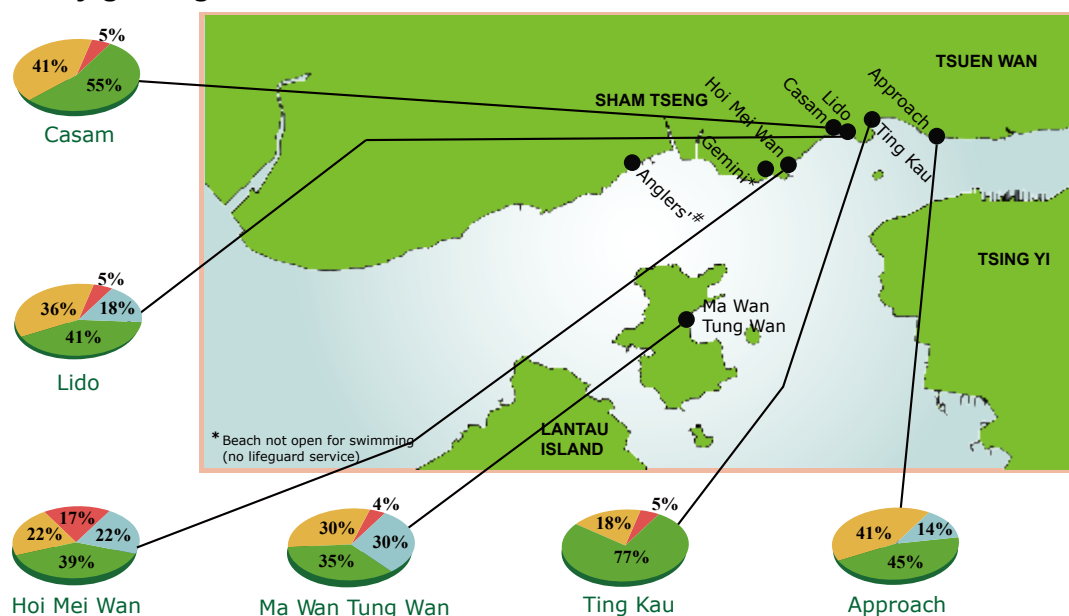


Tsuen Wan District beaches

Annual ranking



Weekly grading



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

“*” Beach not open for swimming. No grading was provided. “#” Temporarily closed for renovation.

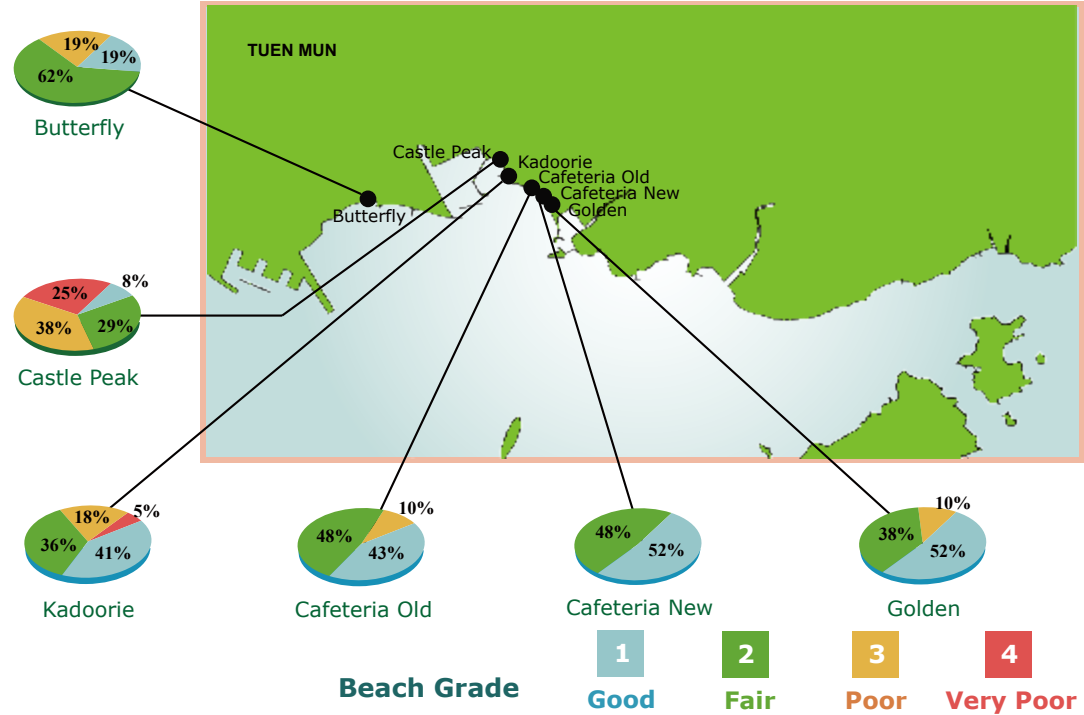


Tuen Mun District beaches

Annual ranking



Weekly grading



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

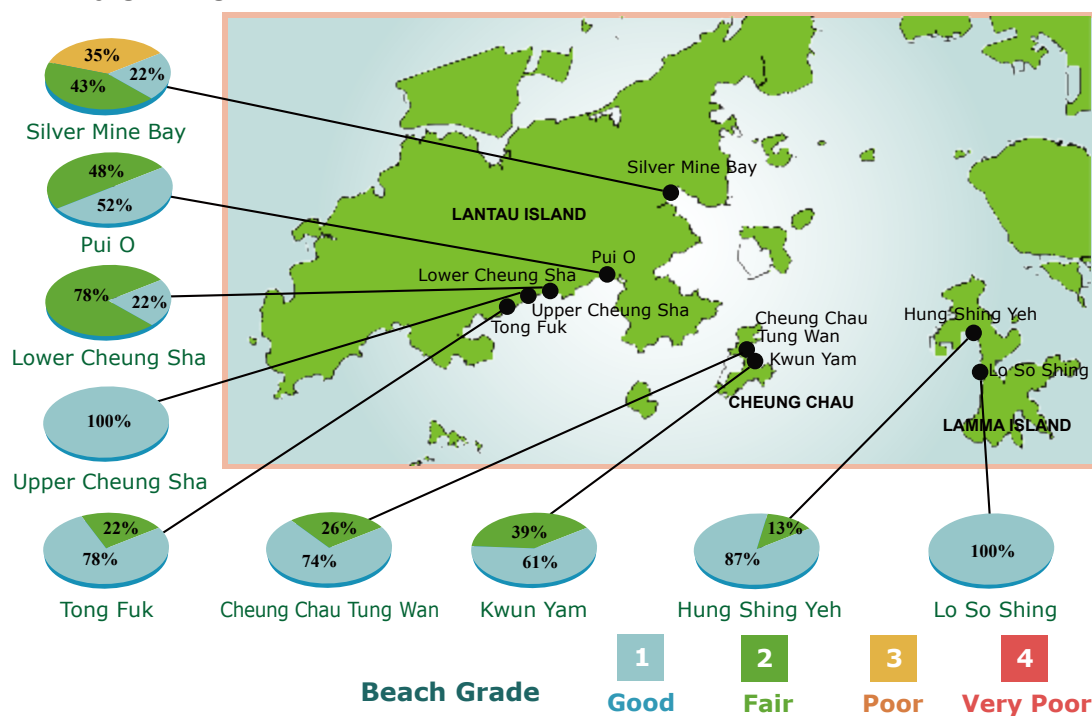


Islands District beaches

Annual ranking



Weekly grading



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



Tai Po District beaches

Annual ranking



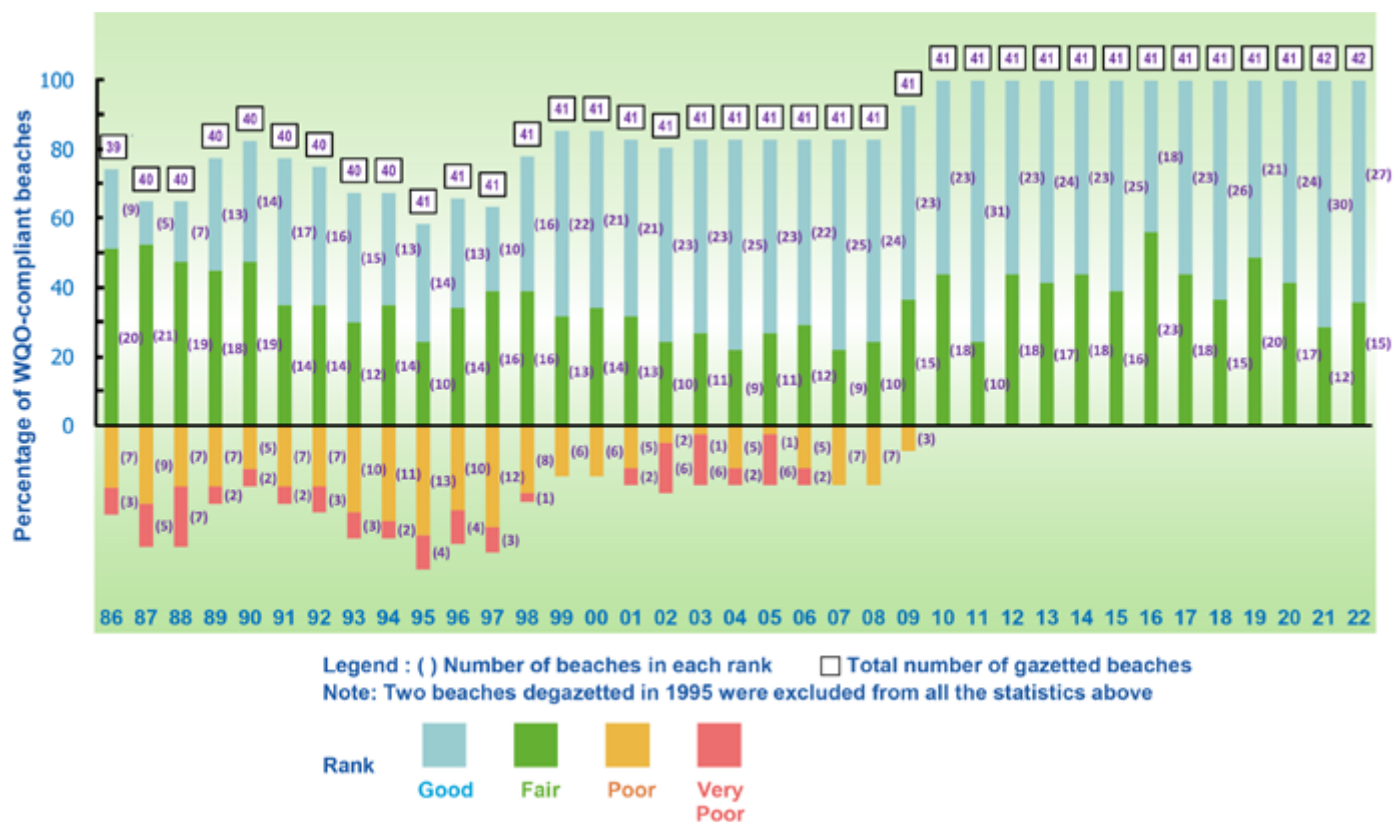
Weekly grading



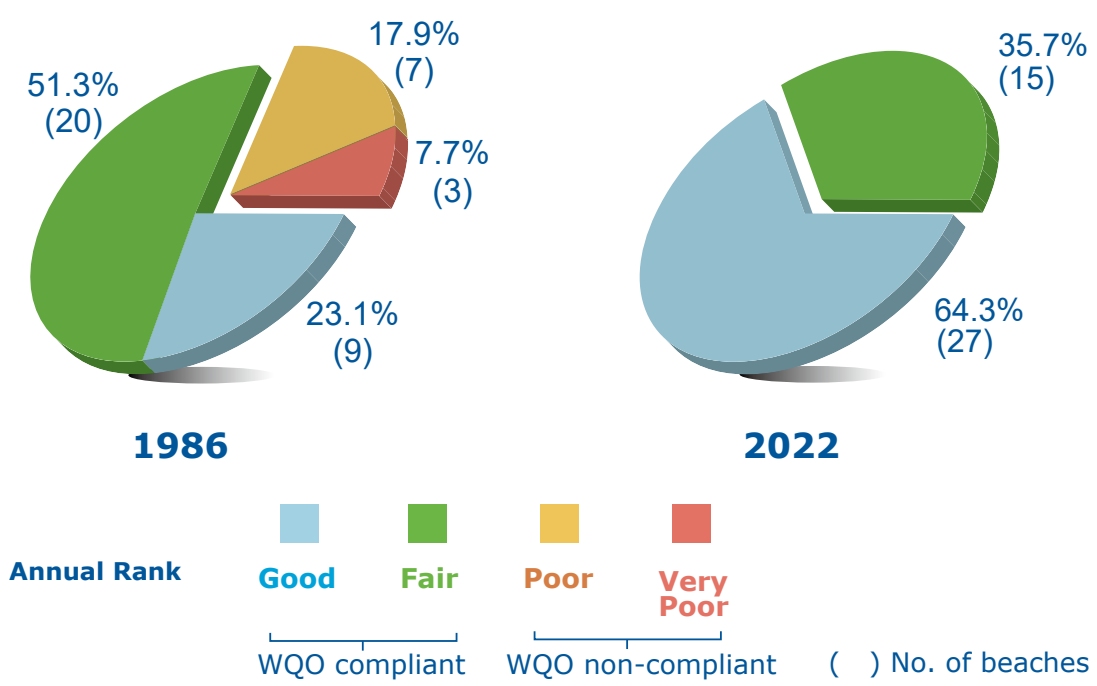
Note: Figures may not add up to 100% due to roundings



Annual ranking of gazetted beaches, 1986 - 2022



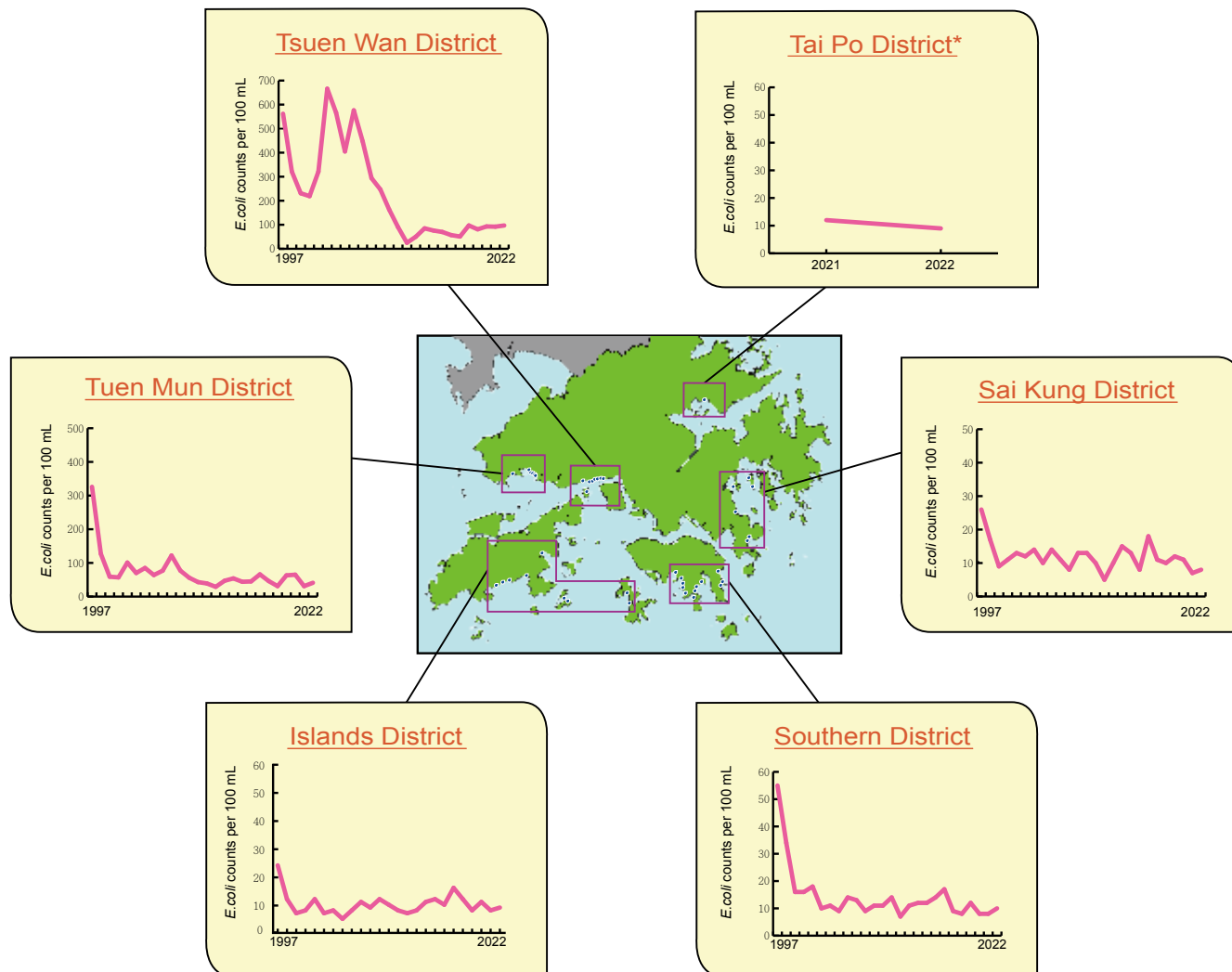
Comparison of annual beach ranking of gazetted beaches in 1986 and 2022



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



Annual geometric mean of *E. coli* levels of gazetted beaches by district, 1997 - 2022



*The Tai Po Lung Mei Beach is opened for use by the public in June 2021.



Appendix A - Annual geometric mean *E. coli* levels (1997-2022)

Southern 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	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

Beach	<i>E. coli</i> counts per 100mL												
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Big Wave Bay	149	17	31	21	40	21	78	36	34	103	37	28	27
Chung Hom Kok	9	5	5	8	13	13	6	6	4	6	9	5	18
Deep Water Bay	9	6	9	11	14	19	24	14	11	19	13	13	11
Hairpin	33*	6*	9*	14*	12*	8*	17*	5*	8*	7*	5*	6*	5*
Middle Bay	12	6	15	14	13	13	20	14	9	18	11	16	24
Repulse Bay	7	6	7	10	11	14	10	5	4	4	5	5	6
Rocky Bay	50*	23*	30*	22*	16*	35*	47*	18*	29*	47*	10*	24*	15*
Shek O	19	11	16	15	18	29	26	16	19	25	7	8	23
South Bay	4	4	5	4	5	9	5	3	2	4	3	4	4
St. Stephen`s	4	4	4	10	5	6	7	4	4	5	6	3	3
Stanley Main	20	6	34	19	9	20	23	8	11	7	6	9	7
Turtle Cove	8	4	6	6	8	5	11	5	3	9	8	6	7

Note: * Beach not open for swimming that year

Tai Po District
Annual geometric mean *E. coli* levels

Beach	<i>E. coli</i> counts per 100mL	
	2021	2022
Tai Po Lung Mei	12	9



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	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

Beach	<i>E. coli</i> counts per 100mL												
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Clear Water Bay First	10	7	8	24	15	14	31	20	19	23	19	8	18
Clear Water Bay Second	13	5	18	15	18	17	32	16	13	17	14	9	9
Hap Mun Bay	3	2	2	7	4	2	4	3	3	2	3	3	3
Kiu Tsui	13	9	10	13	11	6	10	5	8	8	11	7	7
Silverstrand	28	18	30	39	40	18	63	56	24	40	28	18	19
Trio	6	2	9	8	10	4	13	7	7	9	6	4	6

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	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*

Beach	<i>E. coli</i> counts per 100mL												
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Anglers'	134*	27*	69*	133	130	77	76	45	143	88	105	135	142*
Approach	124*	59	83	106	121	143	78	114	92	97	133	71	84
Casam	102*	21	50	71	63	52	42	43	94	79	84	74	109
Gemini	137*	19*	40*	135*	110*	56*	40*	39*	120*	79*	101*	127*	139*
Hoi Mei Wan	87*	23	51	86	58	90	65	63	92	112	84	76	75
Lido	87*	21	32	53	57	52	39	34	76	65	66	98	111
Ma Wan Tung Wan	17	10	24	41	31	20	32	29	74	46	84	93	54
Ting Kau	141*	58*	88*	107*	89	151	140	75	101	102	93	85	96

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	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

Beach	<i>E. coli</i> counts per 100mL												
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Butterfly	30	41	42	71	38	98	131	81	39	91	129	57	50
Cafeteria New	31	27	47	50	31	30	38	31	18	40	37	17	20
Cafeteria Old	34	29	48	39	45	41	70	50	30	64	53	23	34
Castle Peak	63	49	48	78	91	71	106	65	70	128	112	103	162
Golden	37	26	62	45	39	31	45	37	22	41	45	19	24
Kadoorie	45	37	40	52	37	29	48	31	28	52	55	19	31

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	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	<i>E. coli</i> counts per 100mL												
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Cheung Chau Tung Wan	12	6	13	10	14	19	9	18	9	8	11	10	12
Hung Shing Yeh	4	3	4	4	5	4	6	5	4	4	5	3	4
Kwun Yam	8	5	5	9	8	12	12	9	8	7	8	15	11
Lo So Shing	3	3	4	5	5	4	6	6	4	3	4	2	3
Lower Cheung Sha	11	9	10	17	21	17	47	19	9	25	10	20	31
Pui O	14	13	22	51	60	24	29	34	19	22	21	22	15
Silver Mine Bay	31	28	38	39	51	59	119	141*	36	106	37	56	51
Tong Fuk	5	4	4	7	4	4	9	3	4	5	4	5	6
Upper Cheung Sha	4	3	4	4	5	3	7	3	4	7	4	4	4

Note: * Beach not open for swimming that year



Appendix B - 2022 Beach visitor number

Southern District

Visitor numbers during the 2022 bathing season

Beach	Daily average		Peak day	Peak month	Total
	Weekdays	Weekends & public holidays			
Big Wave Bay	135	620	1 400	13 030	60 615
Chung Hom Kok	43	177	450	3 275	16 631
Deep Water Bay	735	1 854	10 000	55 400	224 900
Hairpin	89	153	400	4 550	22 510
Middle Bay	44	168	400	3 470	17 050
Repulse Bay	732	3 231	11 100	77 110	315 185
Rocky Bay	-	-	-	-	-
Shek O	291	1 021	5 500	23 545	110 040
South Bay	59	281	750	5 450	27 150
St. Stephen's	66	152	500	3 460	19 120
Stanley Main	699	1 645	4 500	44 800	210 500
Turtle Cove	107	138	280	4 370	23 070

Note:

Information provided by the Leisure and Cultural Services Department

Tai Po District

Visitor numbers during the 2022 bathing season

Beach	Daily average		Peak day	Peak month	Total
	Weekdays	Weekends & public holidays			
Tai Po Lung Mei Beach	881	3 909	8 750	58 500	222 210

Note:

Information provided by the Leisure and Cultural Services Department



Sai Kung District

Visitor numbers during the 2022 bathing season

Beach	Daily average		Peak day	Peak month	Total
	Weekdays	Weekends & public holidays			
Clear Water Bay First	142	394	1 190	9 640	46 515
Clear Water Bay Second	1 614	2 238	5 000	90 000	381 710
Hap Mun Bay	244	790	2 380	22 975	88 195
Kiu Tsui	94	180	335	4 515	23 365
Silverstrand	149	423	1 290	10 960	49 635
Trio	259	596	1 460	17 360	77 190

Note:

Information provided by the Leisure and Cultural Services Department

Tsuen Wan District

Visitor numbers during the 2022 bathing season

Beach	Daily average		Peak day	Peak month	Total
	Weekdays	Weekends & public holidays			
Anglers	-	-	-	-	-
Approach	52	133	270	2 910	15 700
Casam	73	110	200	3 370	16 850
Gemini	16	49	230	1 270	5 480
Hoi Mei Wan	20	168	880	3 110	14 080
Lido	554	998	1 900	29 160	141 680
Ma Wan Tung Wan	185	734	1 670	15 350	74 790
Ting Kau	62	269	420	5 390	25 660

Note:

Information provided by the Leisure and Cultural Services Department



Tuen Mun District

Visitor numbers during the 2022 bathing season

Beach	Daily average		Peak day	Peak month	Total
	Weekdays	Weekends & public holidays			
Butterfly	442	771	4 000	37 950	110 080
Cafeteria New	844	1 589	3 900	59 150	221 800
Cafeteria Old	486	1 030	1 710	24 960	133 730
Castle Peak	300	634	1 200	15 750	84 350
Golden	766	2 130	7 000	49 640	249 820
Kadoorie	222	786	1 920	18 516	84 106

Note:
Information provided by the Leisure and Cultural Services Department

Islands District

Visitor numbers during the 2022 bathing season

Beach	Daily average		Peak day	Peak month	Total
	Weekdays	Weekends & public holidays			
Cheung Chau Tung Wan	525	1 005	2 240	26 760	142 720
Hung Shing Yeh	413	665	1 500	20 610	96 960
Kwun Yam	95	199	475	4 760	26 679
Lo So Shing	82	158	240	4 320	20 820
Lower Cheung Sha	382	1 266	2 800	32 500	138 540
Pui O	626	1 270	2 800	35 900	168 610
Silver Mine Bay	338	1122	3 110	32 917	122 417
Tong Fuk	355	641	1 500	23 920	91 625
Upper Cheung Sha	314	410	820	15 970	70 320

Note:
Information provided by the Leisure and Cultural Services Department



Appendix C - Physicochemical water quality data for gazetted beaches, 2022

Southern District
Summary of physicochemical water quality data of gazetted beaches, 2022

Beach	pH	Salinity (psu) ¹	Turbidity (NTU) ²	Temperature (°C)	Dissolved Oxygen (mg/L) (% Saturation)	
Big Wave Bay	8.32 (8.16 - 8.76)	29.0 (16.8 - 33.5)	2.86 (0.79 - 8.59)	27.5 (22.8 - 31.8)	6.5 (4.5 - 8.6)	93 (70 - 129)
Chung Hom Kok	8.35 (8.10 - 8.71)	27.8 (17.5 - 33.4)	3.93 (1.56 - 7.52)	28.0 (23.2 - 31.6)	6.3 (4.3 - 7.9)	91 (67 - 118)
Deep Water Bay	8.30 (8.02 - 8.77)	27.6 (16.0 - 33.3)	6.91 (1.27 - 20.70)	28.3 (22.3 - 31.8)	6.4 (4.2 - 9.5)	92 (65 - 124)
Hairpin*	8.39 (8.19 - 8.75)	27.9 (3.4 - 33.6)	2.43 (0.76 - 7.62)	27.8 (21.6 - 32.4)	6.5 (4.5 - 8.7)	95 (71 - 125)
Middle Bay	8.35 (8.12 - 8.87)	27.5 (16.6 - 33.1)	5.87 (1.43 - 37.70)	27.9 (23.2 - 31.4)	6.4 (4.5 - 8.0)	93 (70 - 117)
Repulse Bay	8.34 (8.14 - 8.89)	28.5 (16.2 - 33.4)	5.06 (0.62 - 26.60)	27.8 (22.8 - 31.2)	6.5 (4.4 - 8.6)	94 (69 - 126)
Rocky Bay*	8.27 (8.12 - 8.56)	29.5 (3.5 - 33.4)	3.14 (0.79 - 12.90)	27.0 (22.9 - 31.5)	6.5 (4.6 - 8.6)	92 (70 - 127)
Shek O	8.33 (8.19 - 8.68)	30.7 (20.2 - 33.5)	3.61 (1.02 - 10.90)	27.6 (23.0 - 32.4)	6.3 (4.5 - 8.7)	91 (71 - 130)
South Bay	8.33 (8.04 - 8.83)	28.4 (16.7 - 33.4)	5.24 (1.19 - 62.30)	28.1 (22.5 - 32.0)	6.3 (4.4 - 8.3)	91 (68 - 113)
St. Stephen`s	8.32 (8.13 - 8.71)	28.1 (15.0 - 33.5)	3.14 (1.07 - 8.72)	27.9 (22.9 - 31.9)	6.3 (4.5 - 9.0)	92 (70 - 125)
Stanley Main	8.37 (8.19 - 8.76)	28.9 (17.3 - 33.3)	4.62 (0.77 - 46.50)	27.9 (21.6 - 32.5)	6.5 (4.6 - 8.7)	96 (71 - 124)
Turtle Cove	8.38 (8.18 - 8.76)	28.1 (15.9 - 33.2)	4.91 (1.08 - 21.90)	28.0 (24.2 - 31.6)	6.6 (4.4 - 9.1)	95 (70 - 124)

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)

Tai Po District
Summary of physicochemical water quality data of gazetted beaches, 2022

Beach	pH	Salinity (psu) ¹	Turbidity (NTU) ²	Temperature (°C)	Dissolved Oxygen (mg/L) (% Saturation)	
Tai Po Lung Mei	8.32 (8.12 - 8.53)	28.0 (16.5 - 31.8)	1.89 (0.61 - 5.16)	28.6 (23.0 - 33.3)	6.1 (4.3 - 8.1)	90 (65 - 116)

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

1. Practical Salinity Unit; 2. Nephelometric Turbidity Unit

Appendix C



Sai Kung District

Summary of physicochemical water quality data of gazetted beaches, 2022

Beach	pH	Salinity (psu) ¹	Turbidity (NTU) ²	Temperature (°C)	Dissolved Oxygen (mg/L) (% Saturation)	
Clear Water Bay First	8.32 (8.17 - 8.63)	29.2 (19.0 - 33.2)	4.78 (0.84 - 16.90)	28.4 (22.0 - 32.3)	6.0 (4.9 - 7.9)	88 (71 - 105)
Clear Water Bay Second	8.31 (8.15 - 8.67)	30.6 (21.3 - 33.3)	4.23 (1.52 - 12.80)	28.4 (21.5 - 32.5)	5.9 (4.6 - 7.7)	88 (68 - 106)
Hap Mun Bay	8.32 (8.17 - 8.57)	30.3 (20.7 - 33.1)	2.84 (0.84 - 12.10)	28.6 (24.1 - 32.7)	6.2 (4.4 - 7.9)	91 (69 - 110)
Kiu Tsui	8.29 (7.99 - 8.60)	29.6 (20.2 - 33.0)	2.95 (0.79 - 10.20)	28.6 (23.2 - 32.9)	5.9 (4.3 - 7.8)	88 (69 - 116)
Silverstrand	8.32 (8.20 - 8.67)	29.3 (20.7 - 32.7)	4.46 (1.08 - 18.20)	28.4 (22.1 - 32.4)	6.4 (5.1 - 9.6)	93 (79 - 130)
Trio	8.27 (8.14 - 8.53)	28.7 (16.2 - 32.8)	2.87 (1.17 - 9.47)	28.9 (23.7 - 33.5)	6.2 (4.2 - 8.6)	89 (67 - 120)

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, 2022

Beach	pH	Salinity (psu) ¹	Turbidity (NTU) ²	Temperature (°C)	Dissolved Oxygen (mg/L) (% Saturation)	
Anglers'	8.22 (8.06 - 8.81)	25.7 (13.1 - 33.0)	4.59 (1.27 - 11.70)	27.8 (23.5 - 31.4)	5.8 (4.6 - 7.6)	84 (69 - 106)
Approach	8.31 (8.09 - 8.94)	25.5 (10.1 - 32.9)	7.17 (1.24 - 25.50)	28.0 (23.8 - 30.9)	6.5 (4.7 - 8.5)	95 (70 - 128)
Casam	8.26 (8.07 - 8.74)	25.8 (12.6 - 33.1)	5.11 (0.73 - 26.30)	28.2 (23.4 - 31.6)	6.3 (4.9 - 7.7)	90 (73 - 111)
Gemini*	8.18 (8.04 - 8.56)	26.6 (15.6 - 33.0)	3.94 (1.01 - 20.20)	27.5 (23.7 - 30.8)	5.8 (4.6 - 7.4)	83 (67 - 97)
Hoi Mei Wan	8.23 (8.04 - 8.67)	25.4 (12.5 - 33.1)	3.40 (0.47 - 10.20)	28.0 (22.9 - 31.0)	6.2 (4.8 - 8.5)	89 (72 - 116)
Lido	8.24 (8.00 - 8.65)	25.8 (12.7 - 33.0)	4.30 (0.85 - 21.10)	28.0 (23.5 - 31.1)	6.0 (4.4 - 8.7)	87 (65 - 115)
Ma Wan Tung Wan	8.27 (8.07 - 8.54)	27.1 (15.3 - 32.7)	7.62 (0.99 - 33.70)	27.9 (15.1 - 32.8)	6.4 (4.5 - 8.8)	92 (67 - 127)
Ting Kau	8.28 (8.07 - 8.71)	24.9 (11.3 - 31.9)	6.38 (0.56 - 28.70)	28.4 (23.0 - 31.6)	6.3 (4.8 - 8.7)	91 (71 - 118)

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, 2022

Beach	pH	Salinity (psu) ¹	Turbidity (NTU) ²	Temperature (°C)	Dissolved Oxygen (mg/L) (% Saturation)	
Butterfly	8.20 (7.94 - 8.64)	22.3 (5.3 - 32.6)	6.59 (1.44 - 18.50)	28.3 (24.4 - 32.0)	6.0 (4.0 - 8.6)	85 (63 - 116)
Cafeteria New	8.25 (8.06 - 8.70)	21.9 (5.7 - 32.6)	7.08 (2.26 - 29.00)	28.1 (23.9 - 31.5)	6.1 (4.2 - 8.2)	87 (63 - 122)
Cafeteria Old	8.24 (8.03 - 8.67)	21.7 (5.1 - 32.5)	6.43 (1.71 - 25.20)	28.2 (23.9 - 32.0)	6.0 (3.6 - 8.4)	85 (56 - 123)
Castle Peak	8.26 (7.95 - 8.76)	20.1 (4.4 - 32.7)	7.03 (0.86 - 18.60)	28.7 (24.9 - 32.2)	6.6 (4.2 - 9.3)	95 (68 - 150)
Golden	8.22 (8.05 - 8.67)	22.1 (5.8 - 32.5)	8.23 (2.09 - 41.50)	28.1 (23.7 - 31.8)	6.2 (4.2 - 9.4)	90 (63 - 130)
Kadoorie	8.22 (7.98 - 8.72)	21.1 (4.4 - 32.7)	5.39 (0.98 - 17.20)	28.4 (24.9 - 32.1)	6.1 (4.2 - 8.6)	88 (65 - 121)

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, 2022

Beach	pH	Salinity (psu) ¹	Turbidity (NTU) ²	Temperature (°C)	Dissolved Oxygen (mg/L) (% Saturation)	
Cheung Chau Tung Wan	8.25 (8.09 - 8.55)	26.7 (2 - 33.1)	3.67 (0.95 - 11.30)	27.6 (22.7 - 30.7)	6.5 (4.7 - 7.9)	93 (69 - 120)
Hung Shing Yeh	8.29 (8.08 - 8.70)	27.0 (9.8 - 32.8)	6.37 (1.55 - 18.60)	27.7 (22.9 - 32.4)	6.7 (5.0 - 8.4)	97 (74 - 127)
Kwun Yam	8.24 (8.09 - 8.51)	27.4 (18.3 - 32.9)	3.63 (1.28 - 10.50)	27.7 (22.8 - 30.9)	7.1 (5.0 - 10.0)	101 (75 - 130)
Lo So Shing	8.31 (8.15 - 8.53)	27.9 (14.5 - 33.2)	4.62 (1.15 - 13.80)	27.9 (23.4 - 31.9)	6.8 (4.7 - 9.7)	98 (73 - 127)
Lower Cheung Sha	8.34 (7.01 - 8.74)	25.6 (11.7 - 32.1)	8.72 (1.48 - 45.20)	28.5 (22.6 - 34.0)	6.4 (4.2 - 8.3)	95 (72 - 128)
Pui O	8.28 (6.30 - 8.74)	26.5 (14.0 - 33.0)	15.66 (3.04 - 128.00)	29.9 (24.1 - 36.2)	5.8 (3.9 - 8.3)	86 (55 - 130)
Silver Mine Bay	8.28 (8.06 - 8.58)	24.4 (11.3 - 31.3)	15.14 (2.76 - 108.00)	29.4 (23.8 - 33.9)	6.2 (4.7 - 7.7)	90 (62 - 112)
Tong Fuk	8.32 (6.81 - 8.72)	26.9 (13.2 - 33.0)	7.84 (1.03 - 61.30)	28.9 (22.8 - 34.3)	6.0 (4.4 - 8.2)	88 (63 - 112)
Upper Cheung Sha	8.35 (7.09 - 8.69)	26.9 (12.9 - 33.1)	8.24 (0.98 - 57.40)	28.8 (22.5 - 33.7)	6.1 (4.2 - 7.2)	90 (59 - 114)

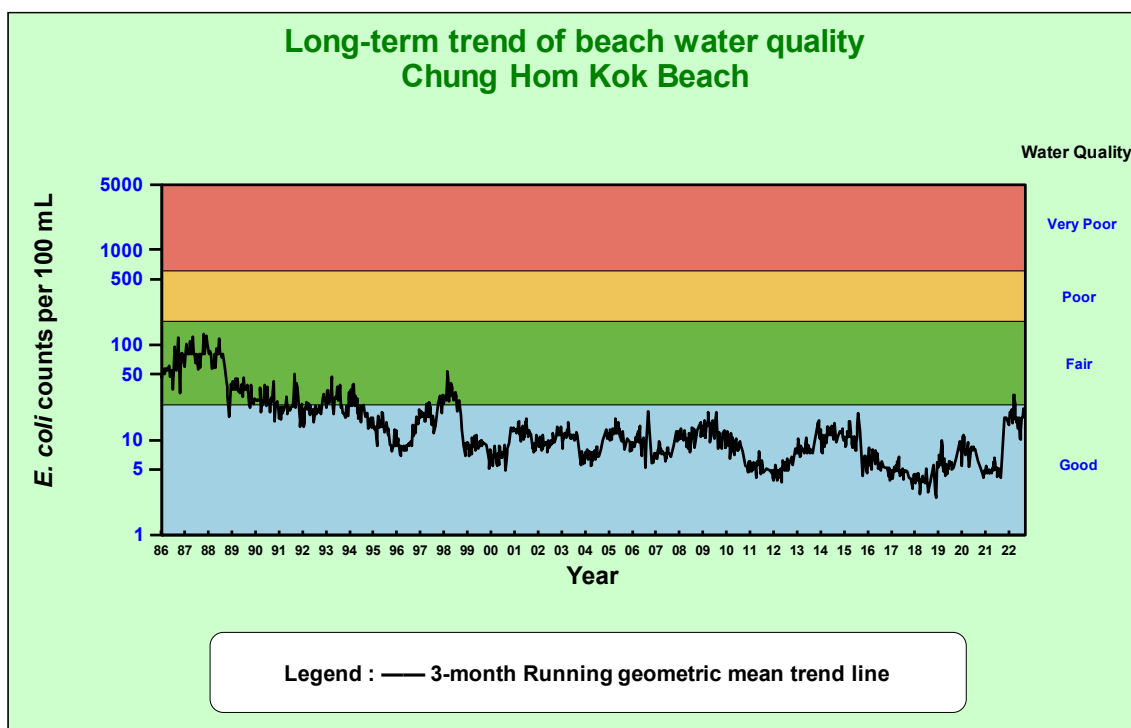
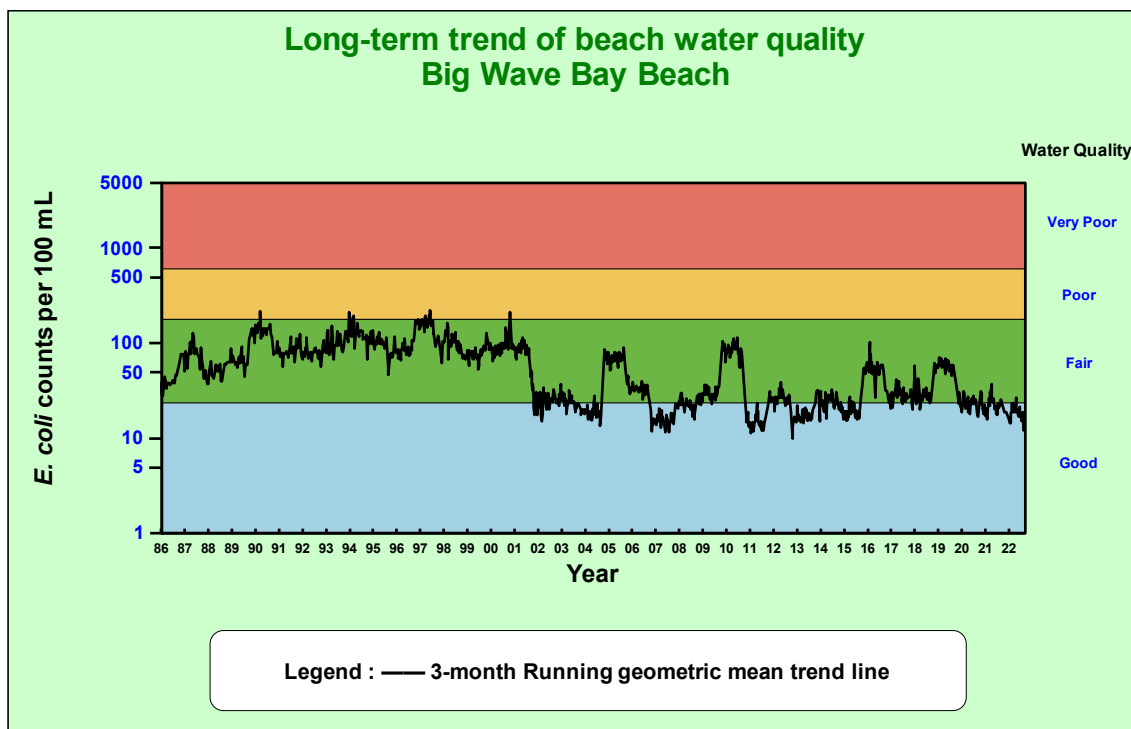
Note: Data presented are arithmetic means; figures in brackets are ranges
1. Practical Salinity Unit; 2. Nephelometric Turbidity Unit

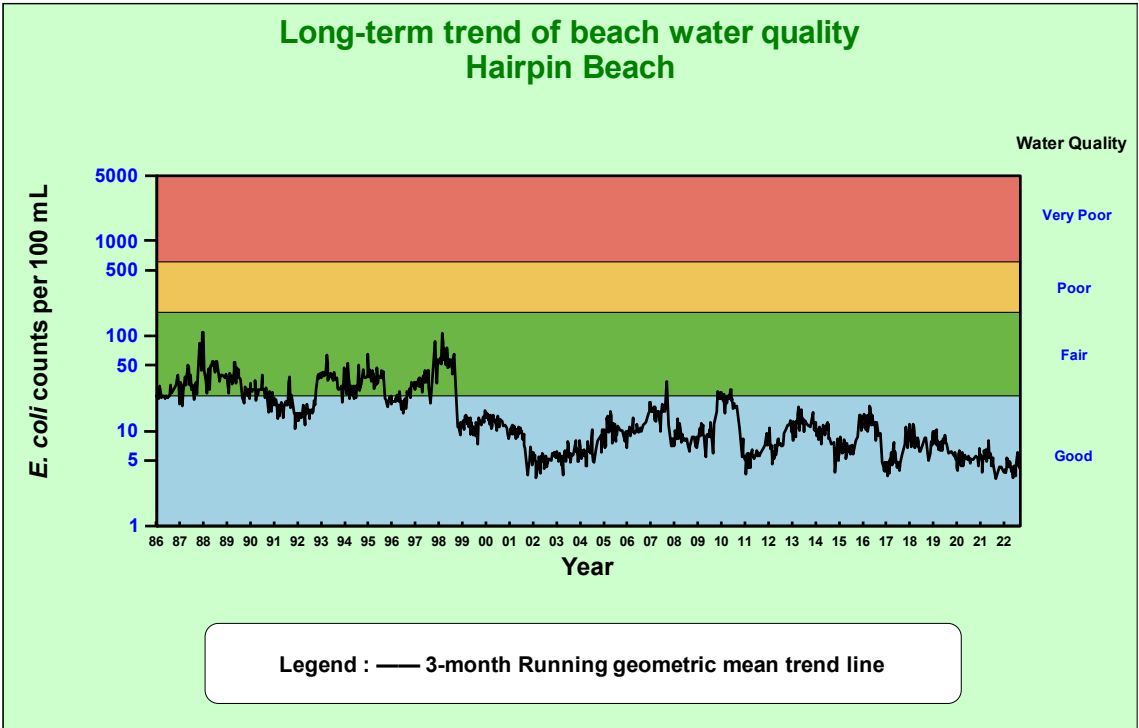
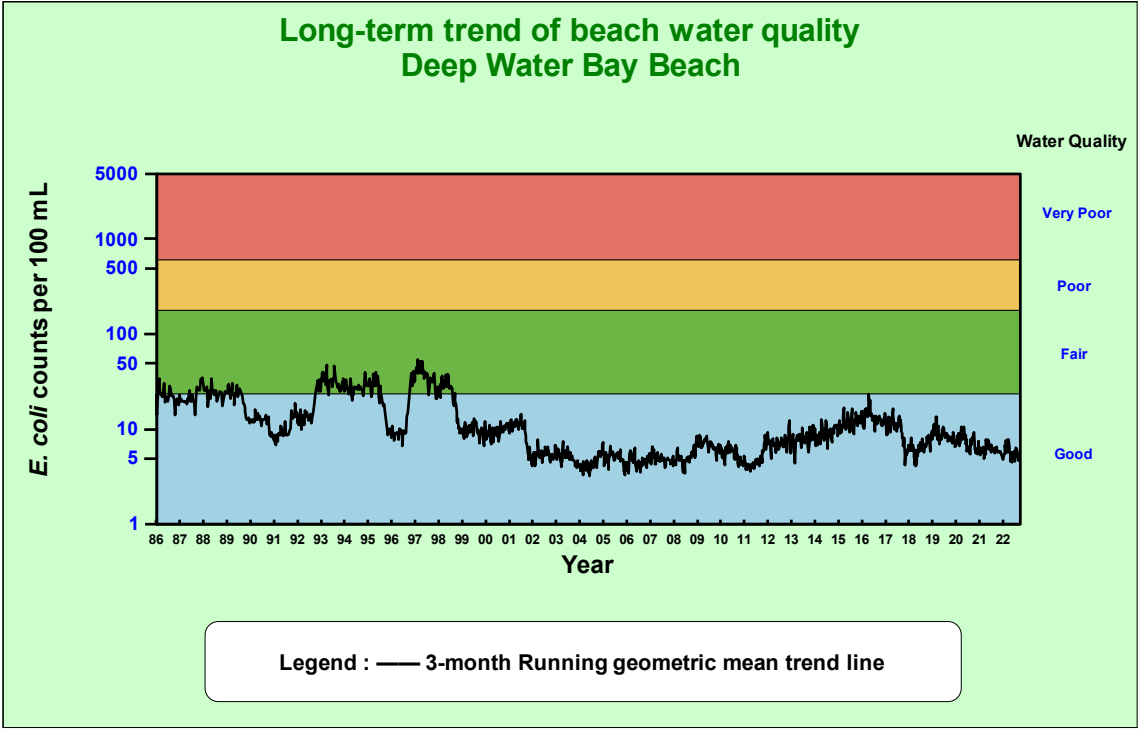
Appendix C

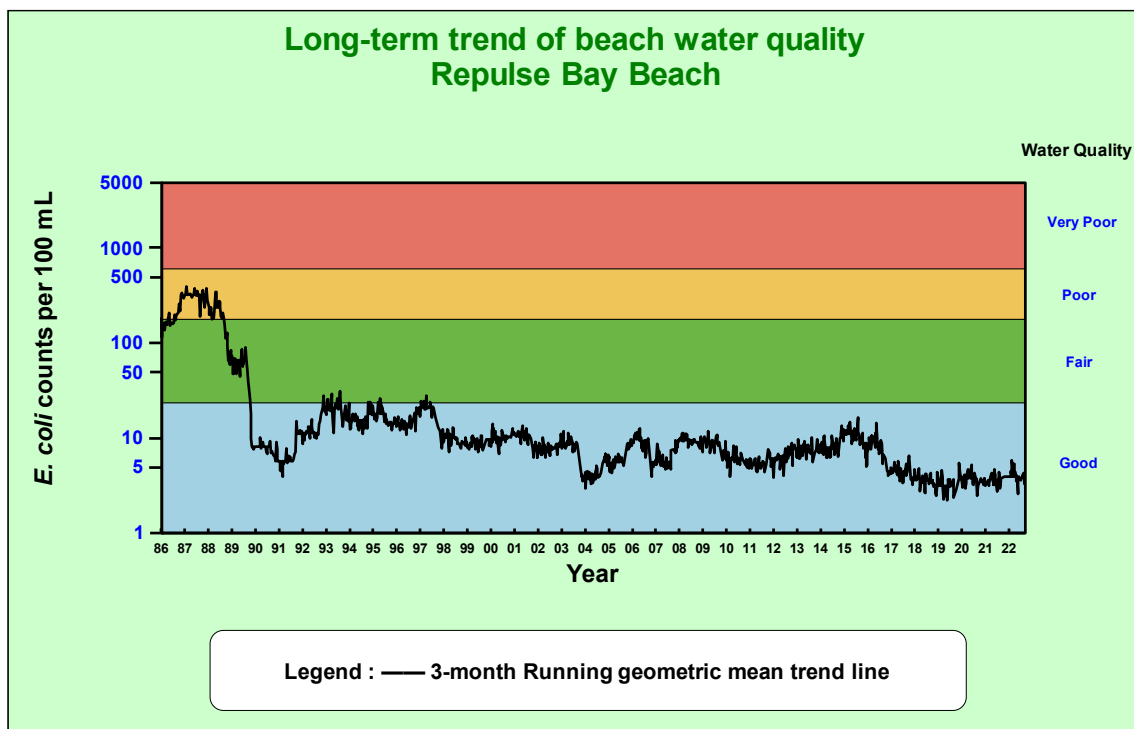
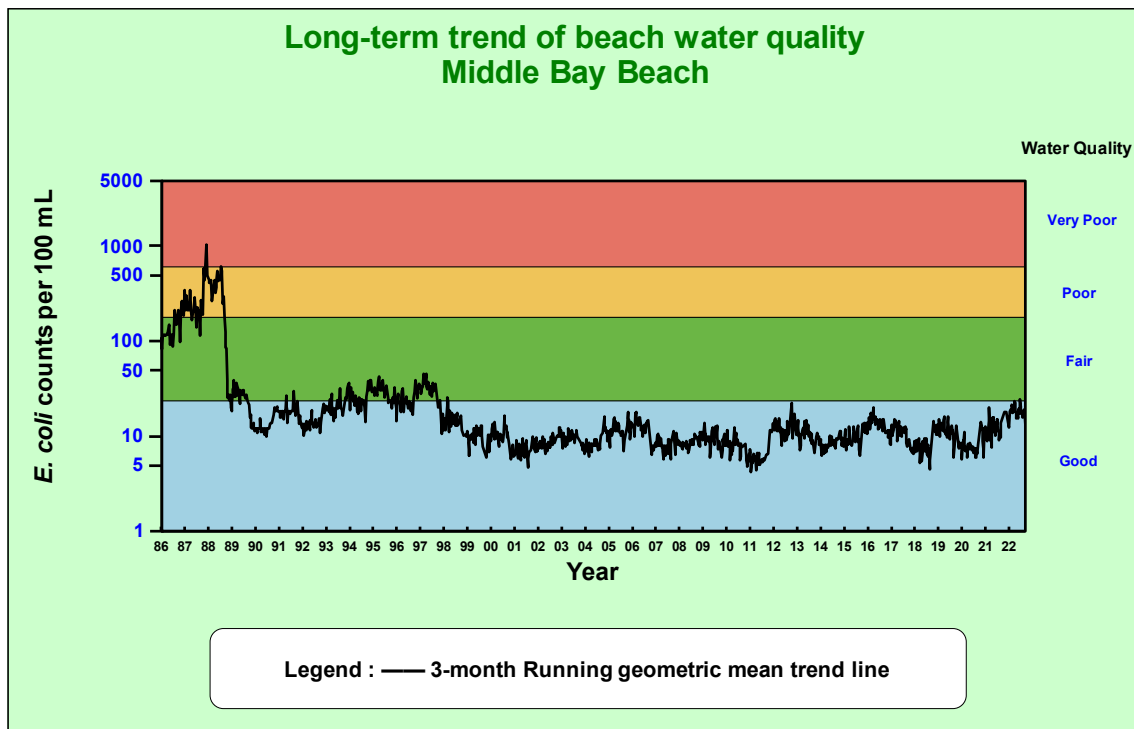


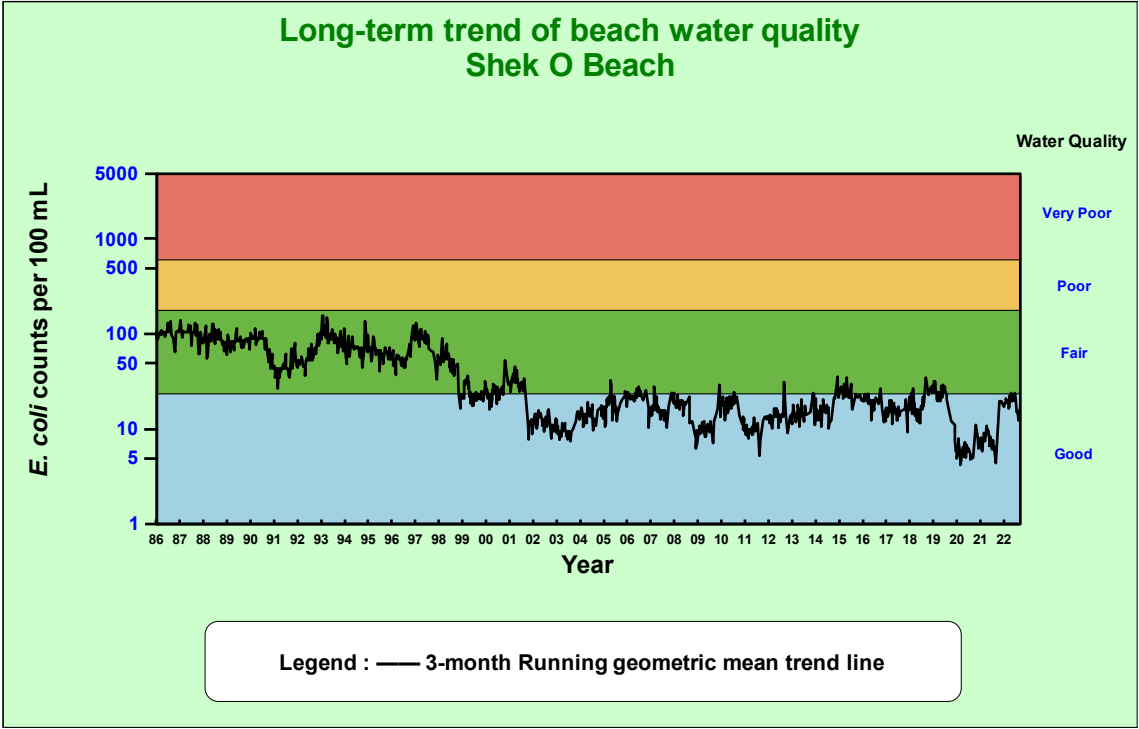
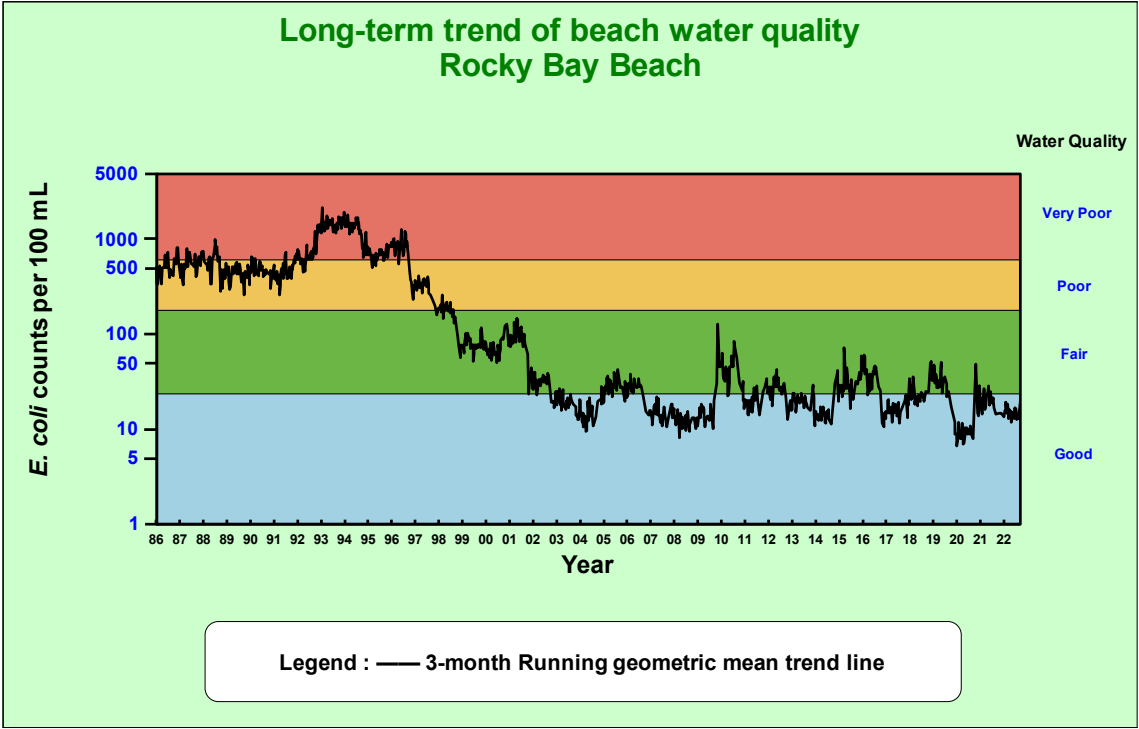
Appendix D - Long-term trend of beach water quality (1986 - 2022)

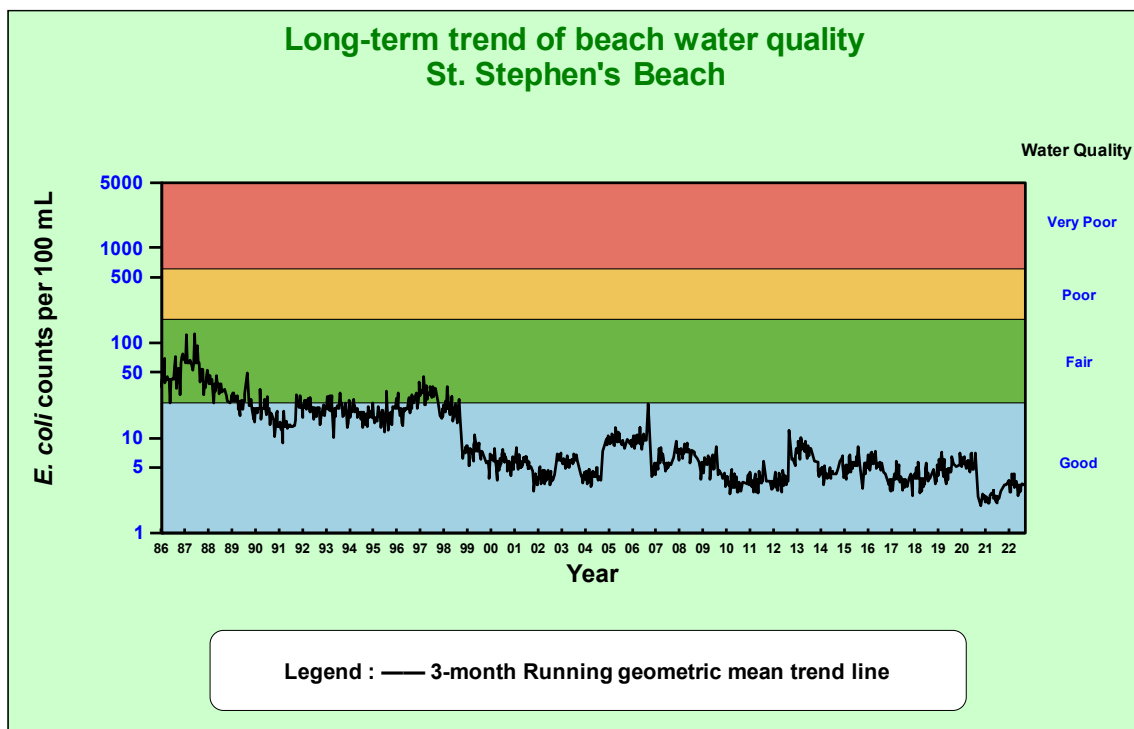
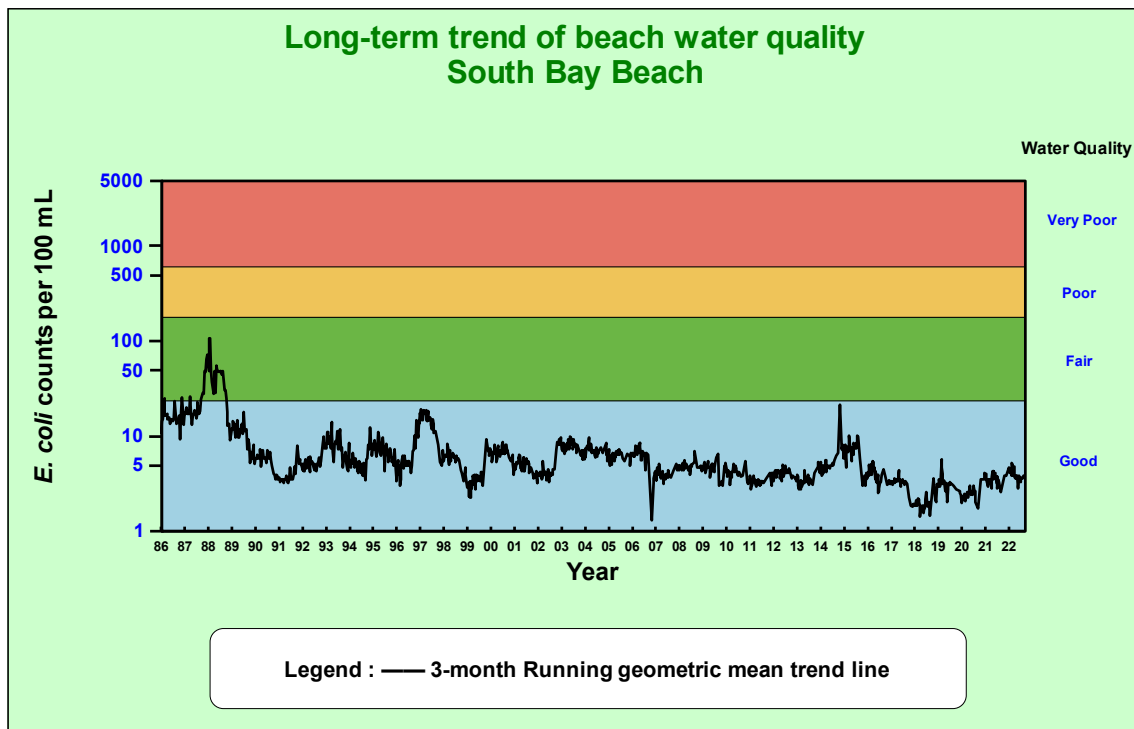
Southern District

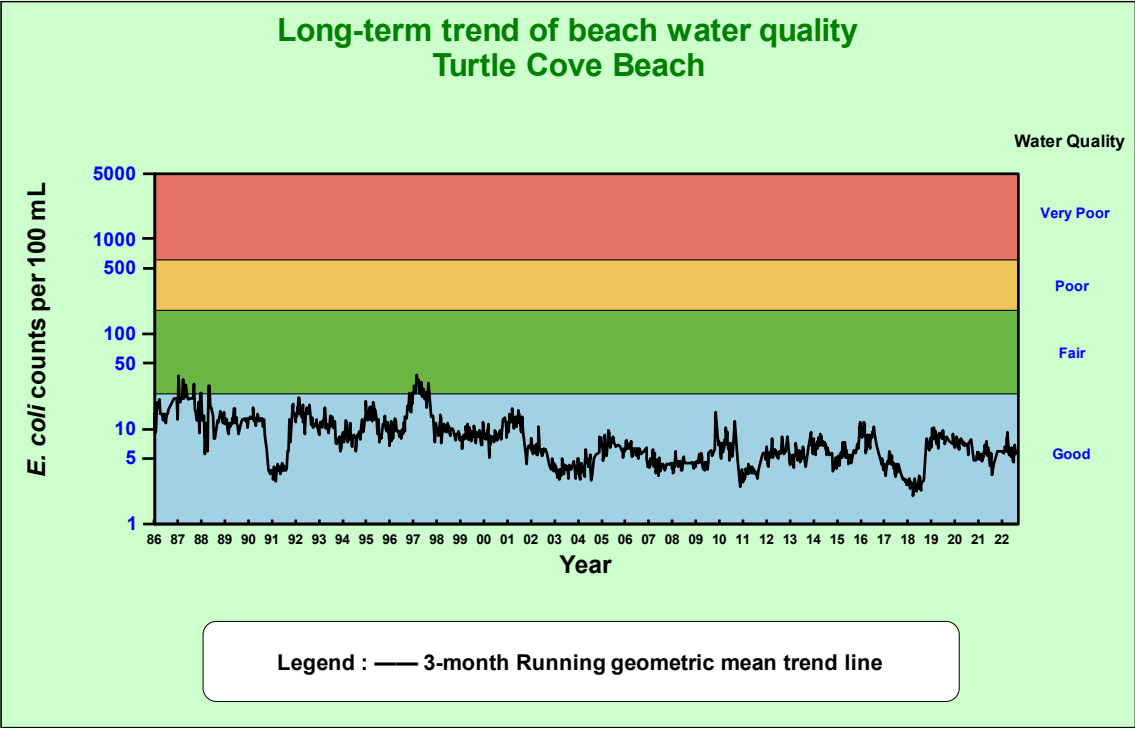
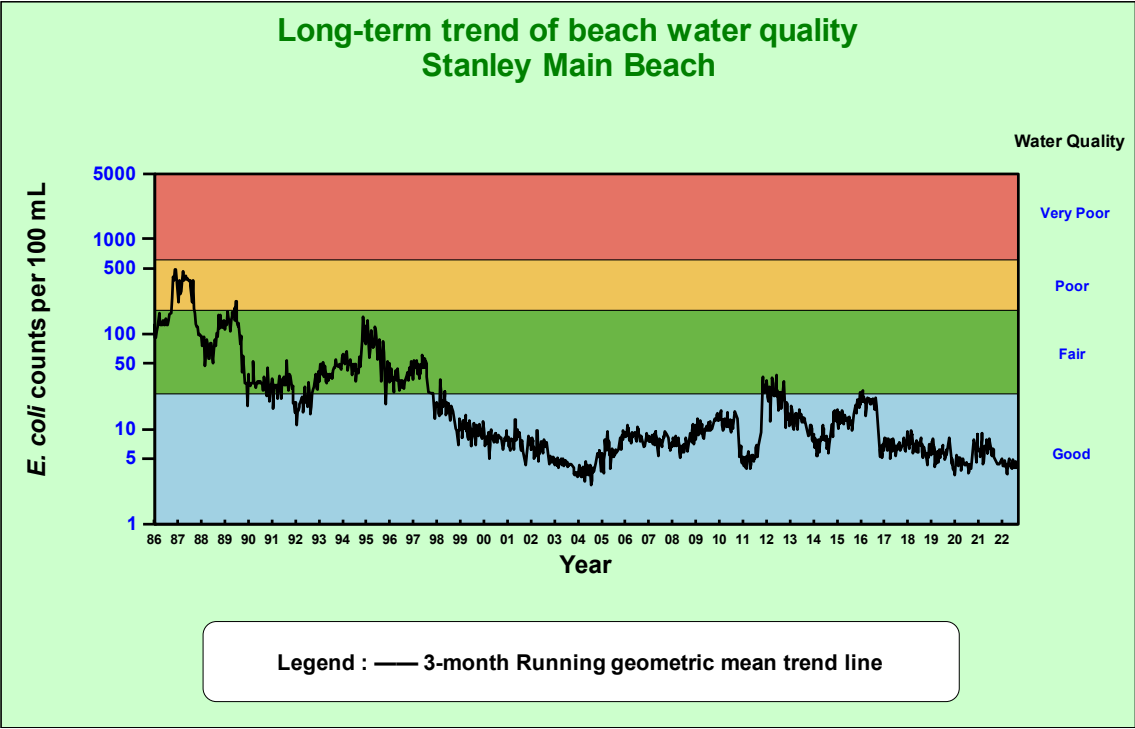




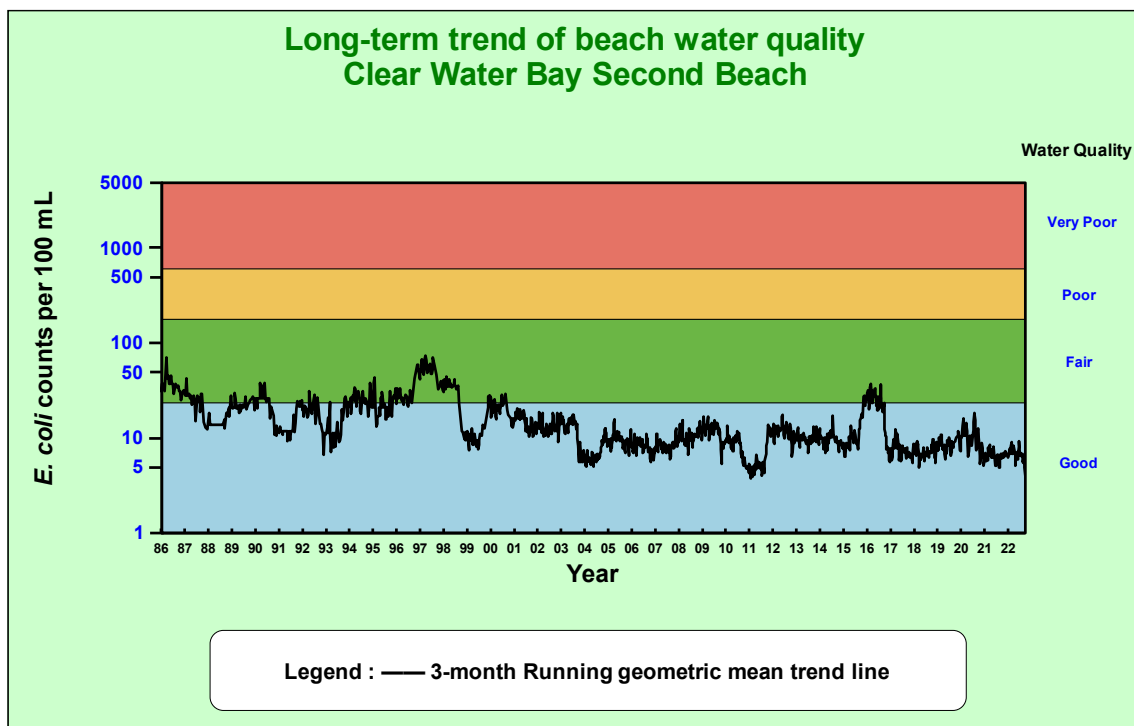
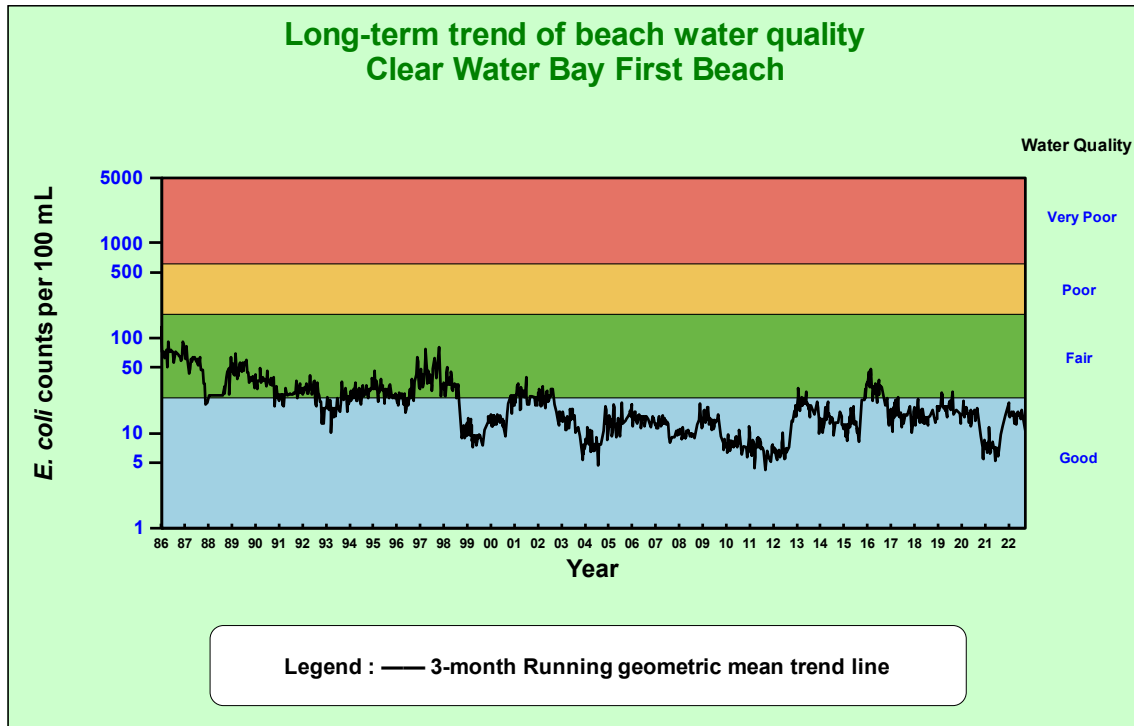


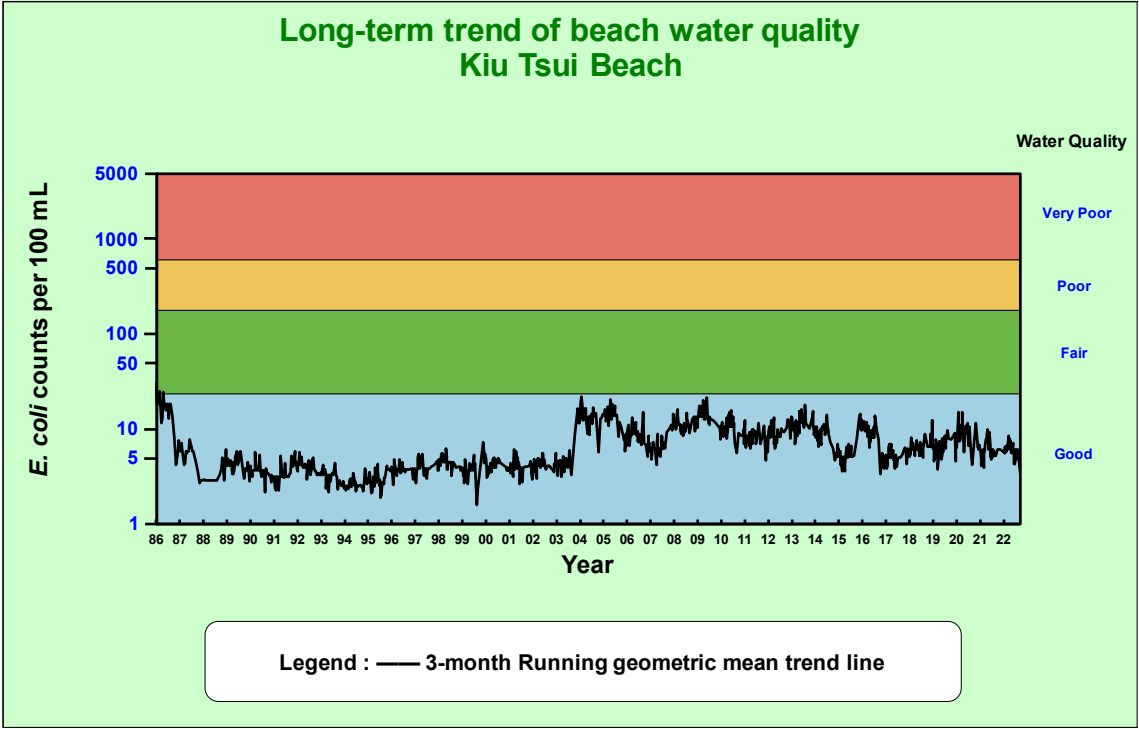
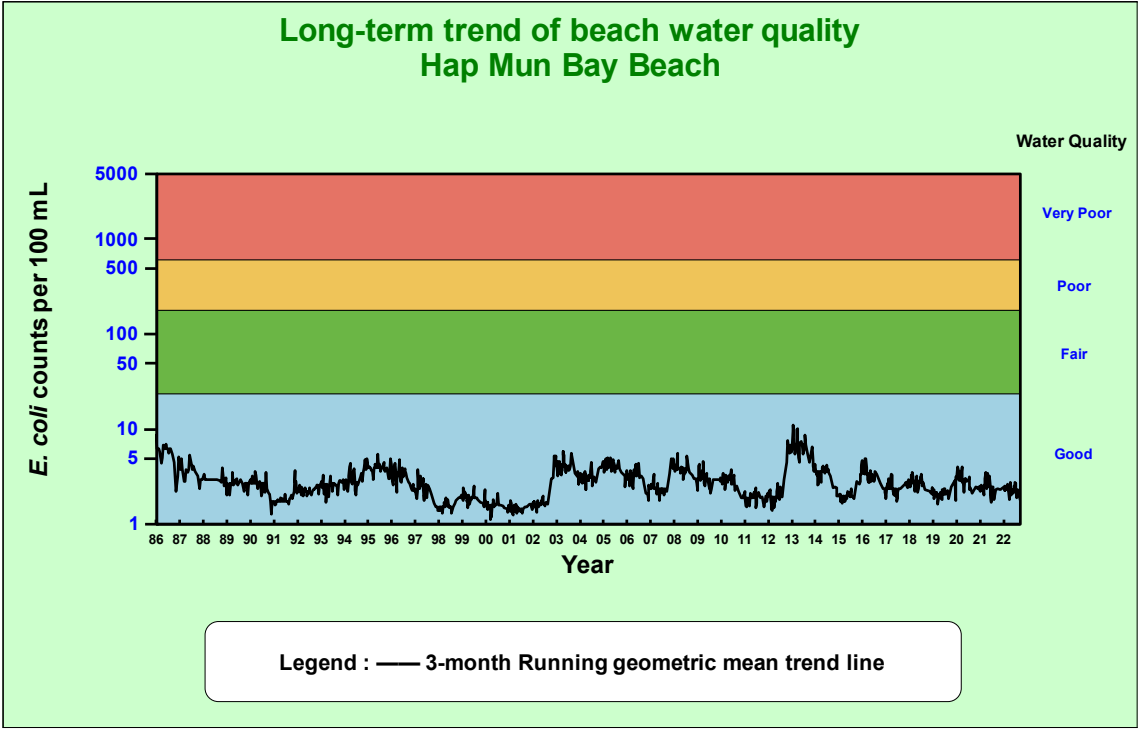


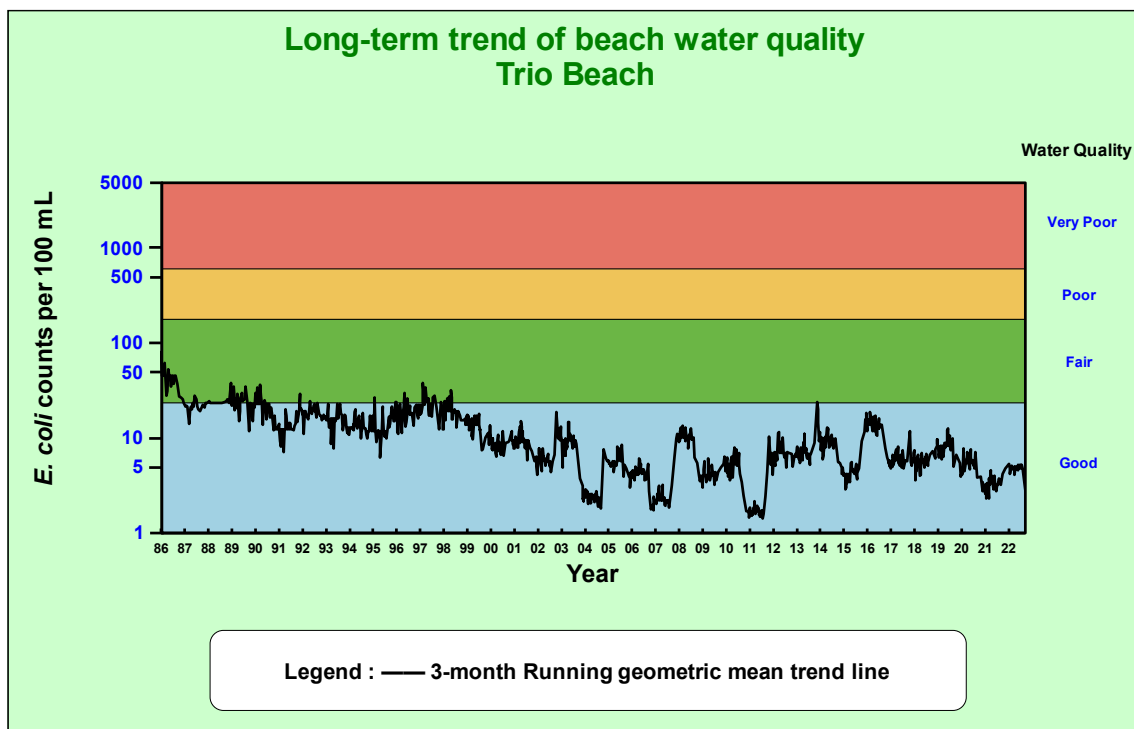
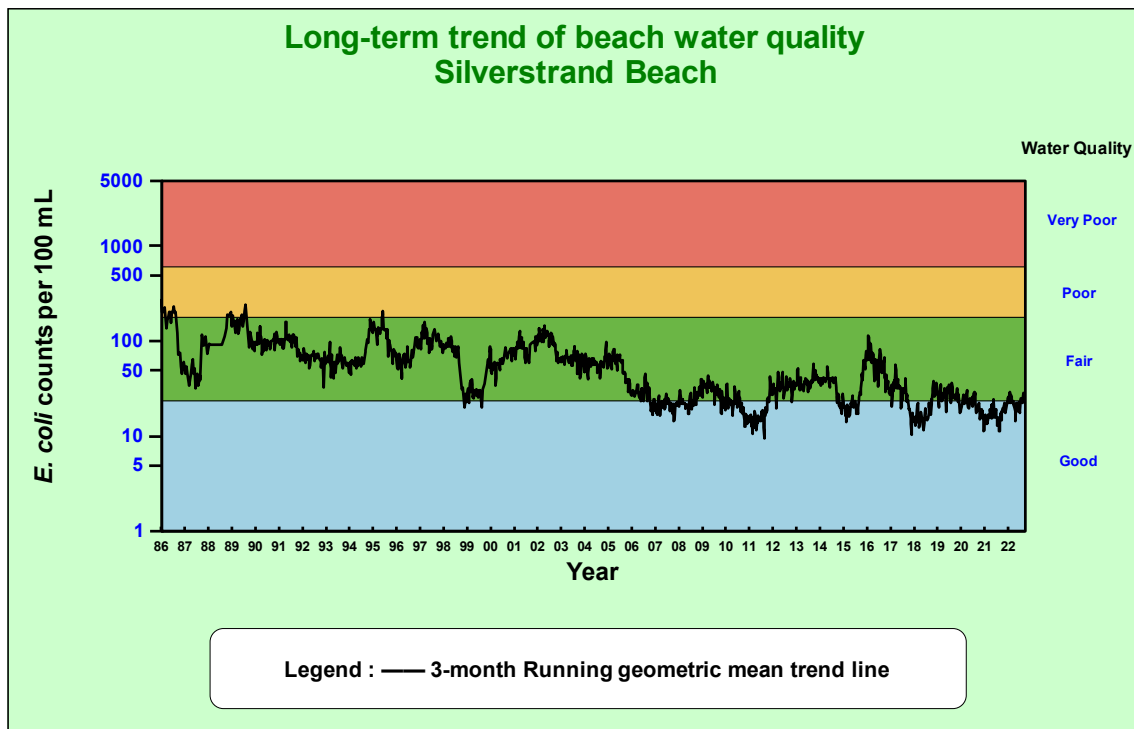




Sai Kung District

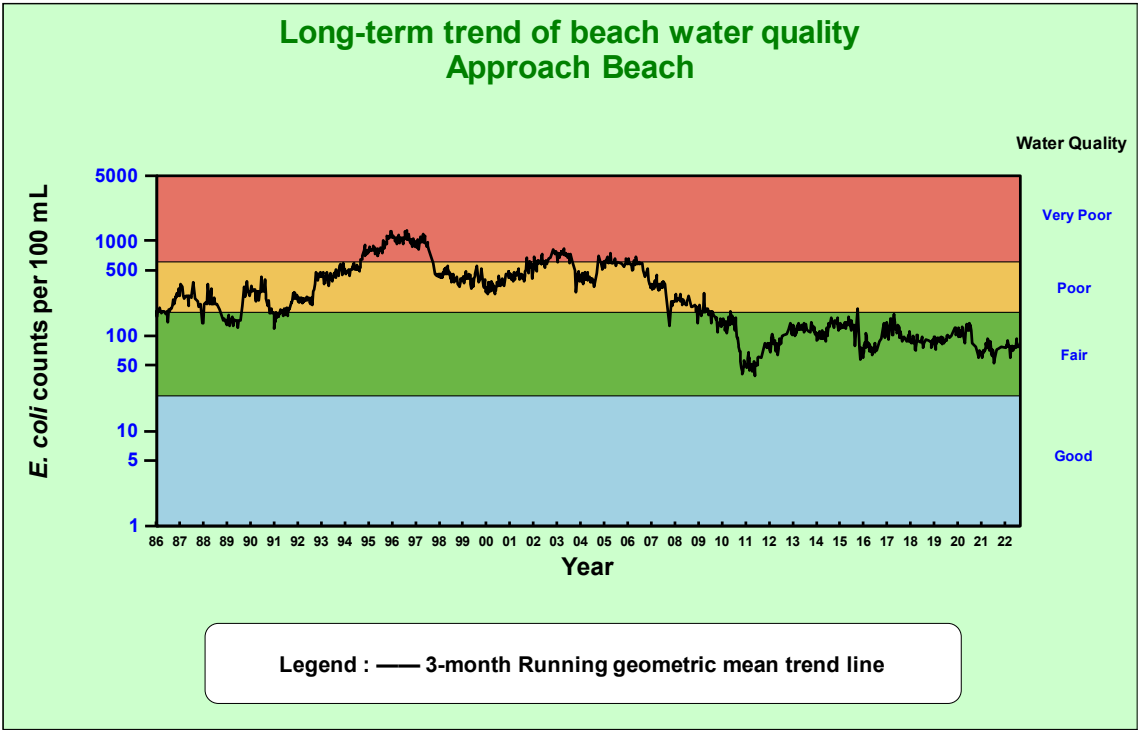
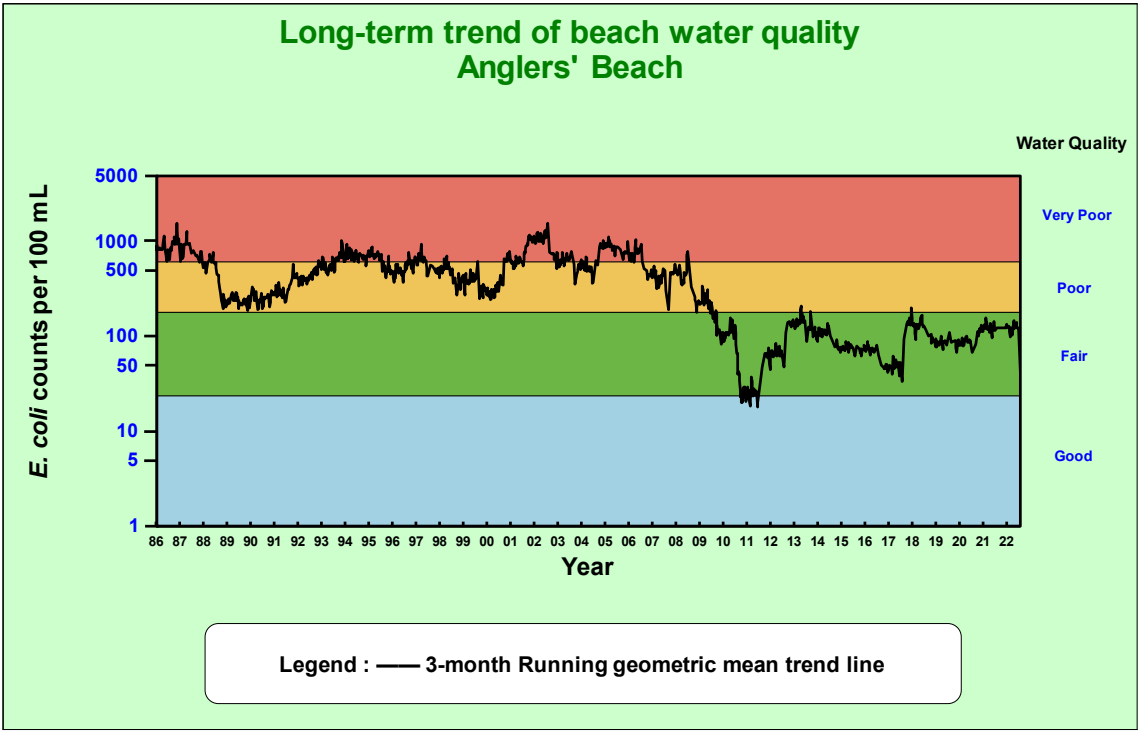


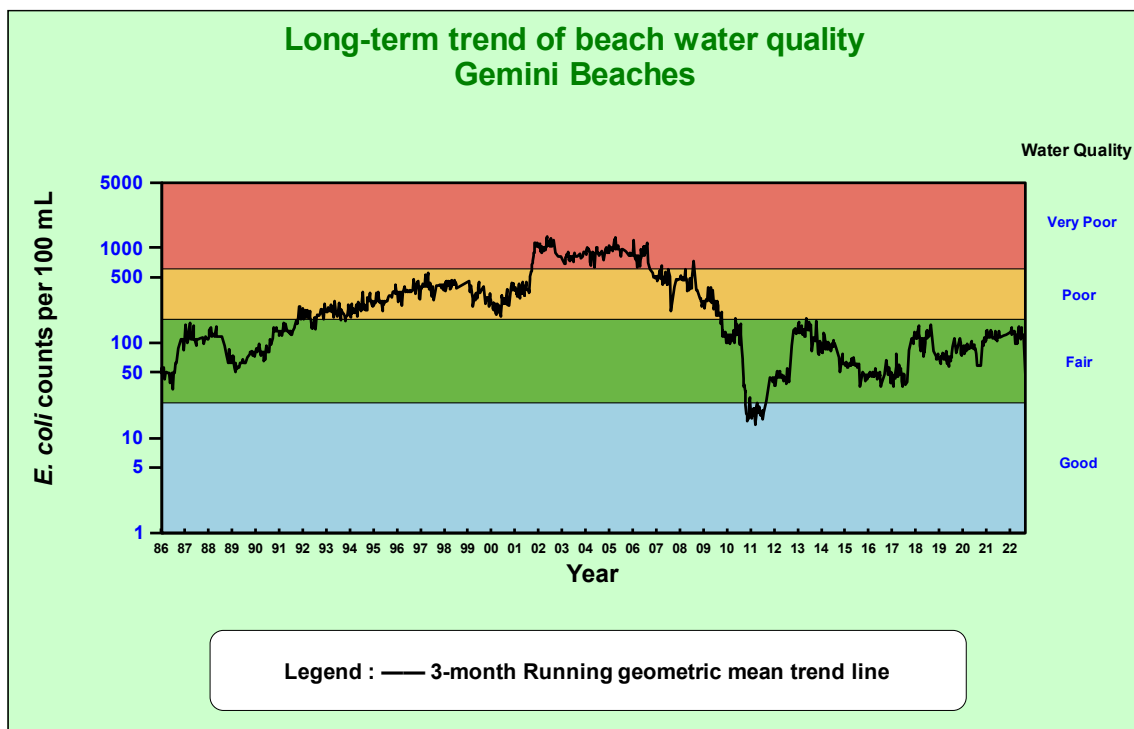
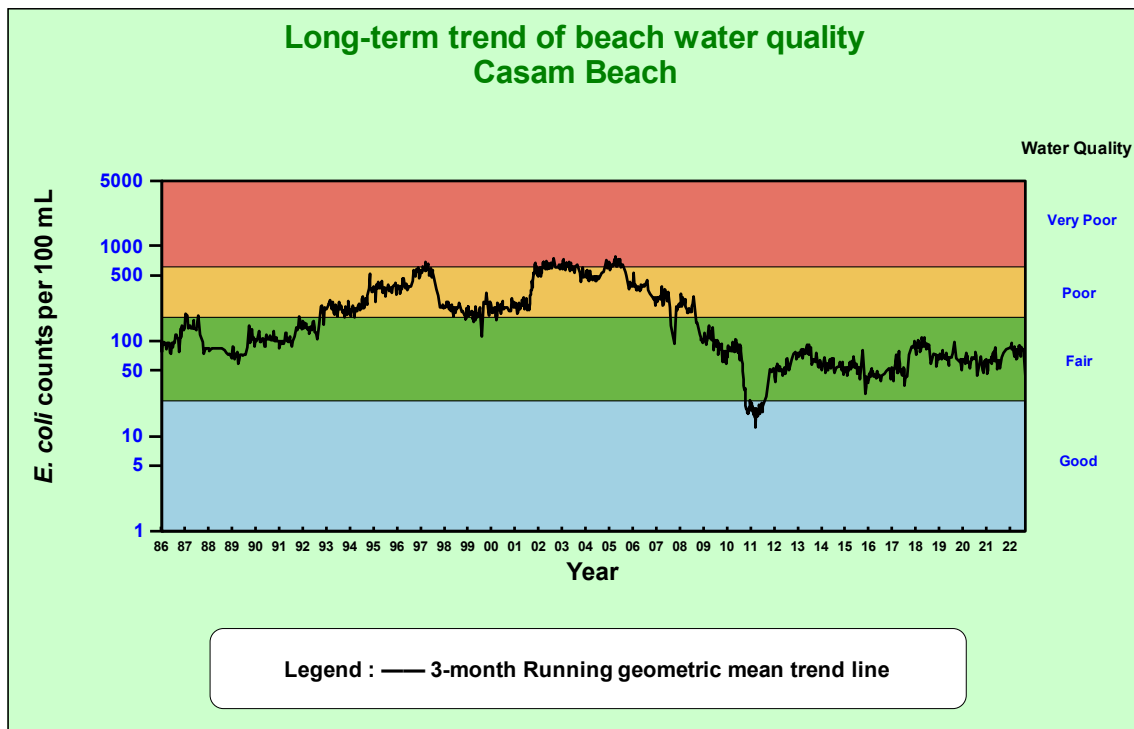


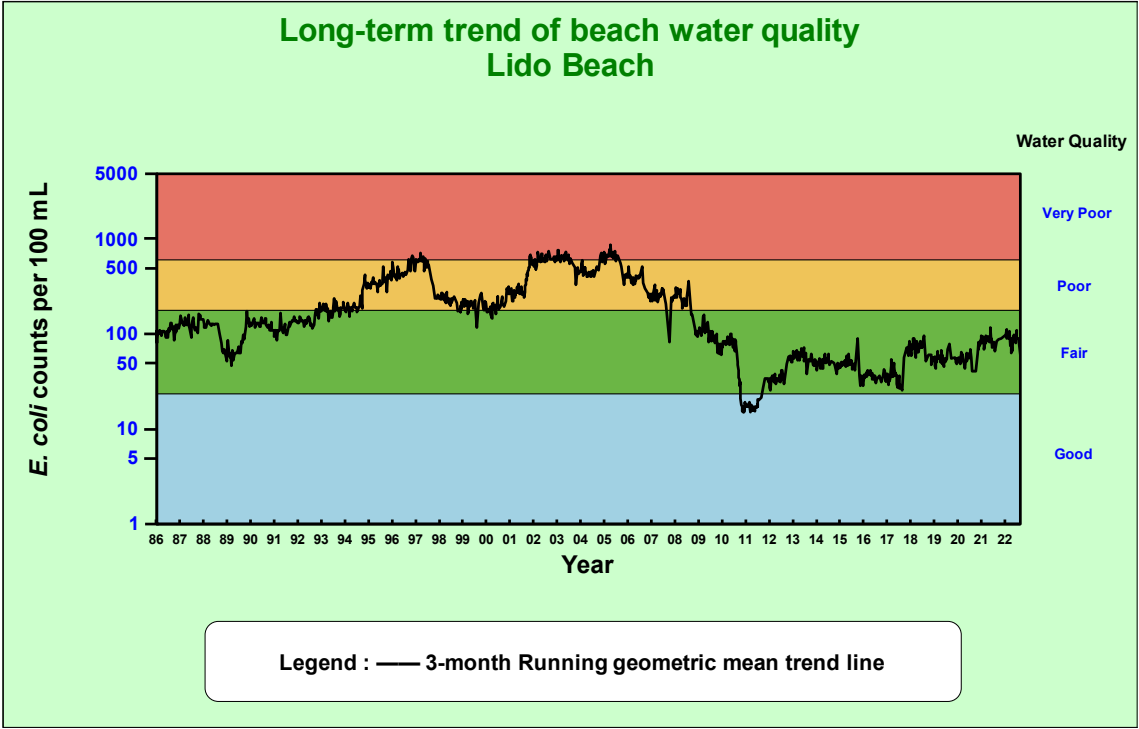
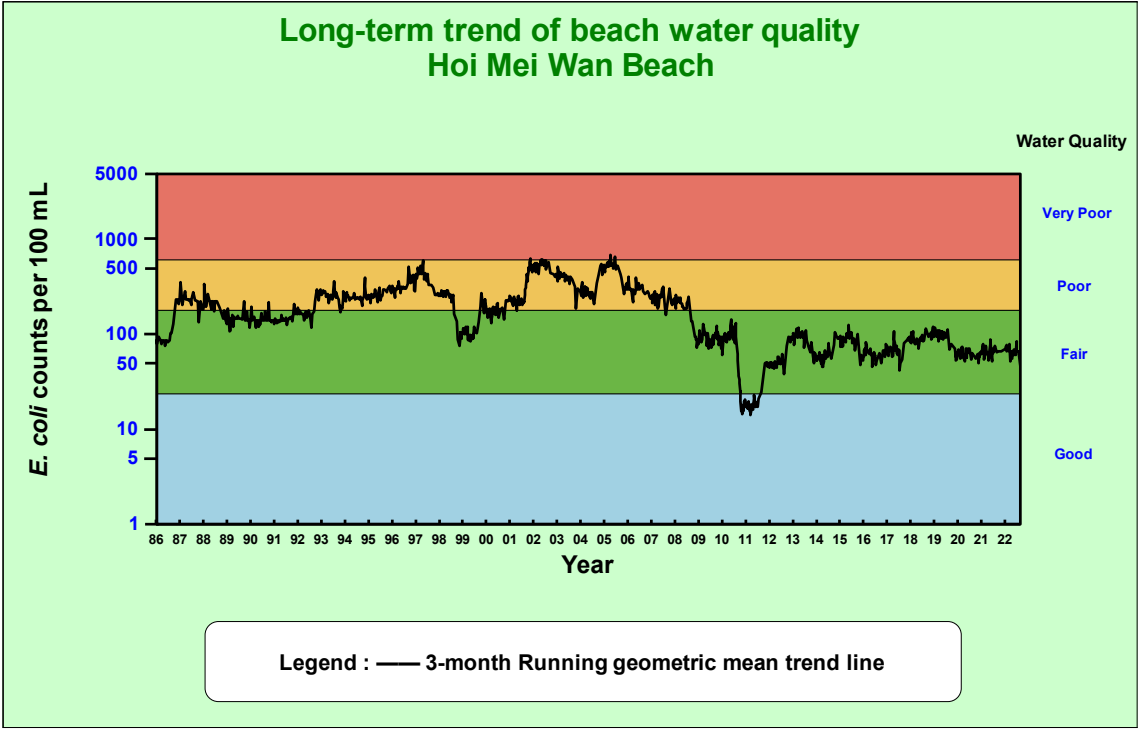


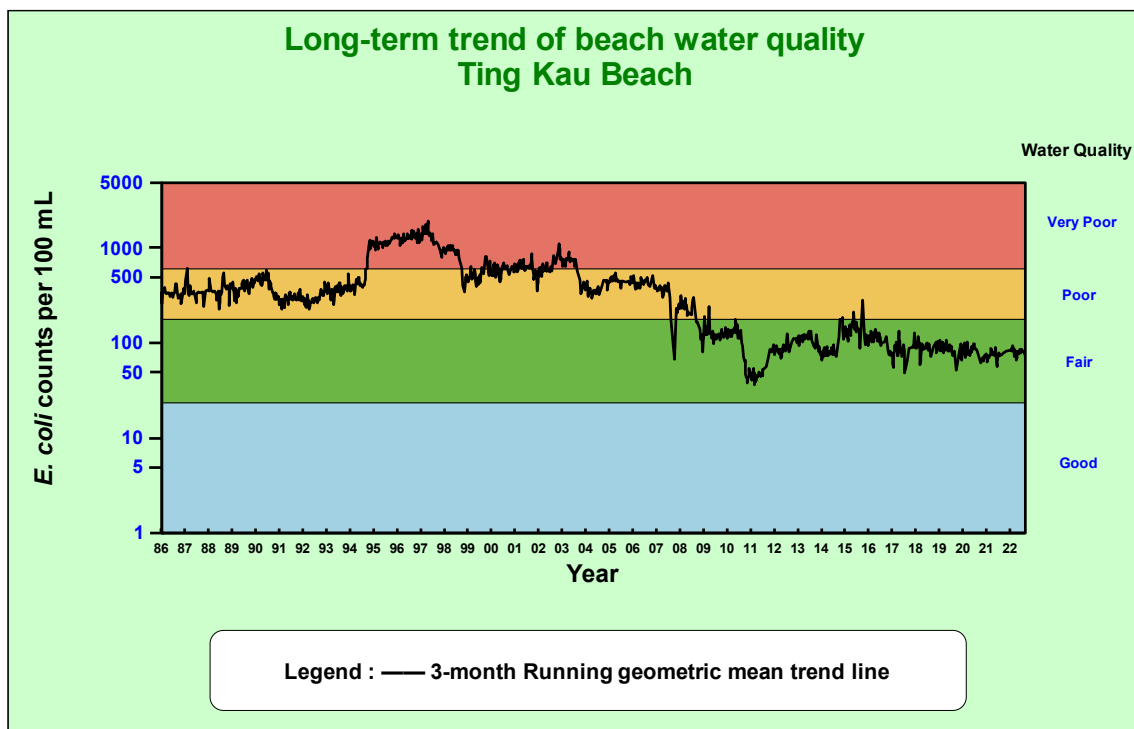
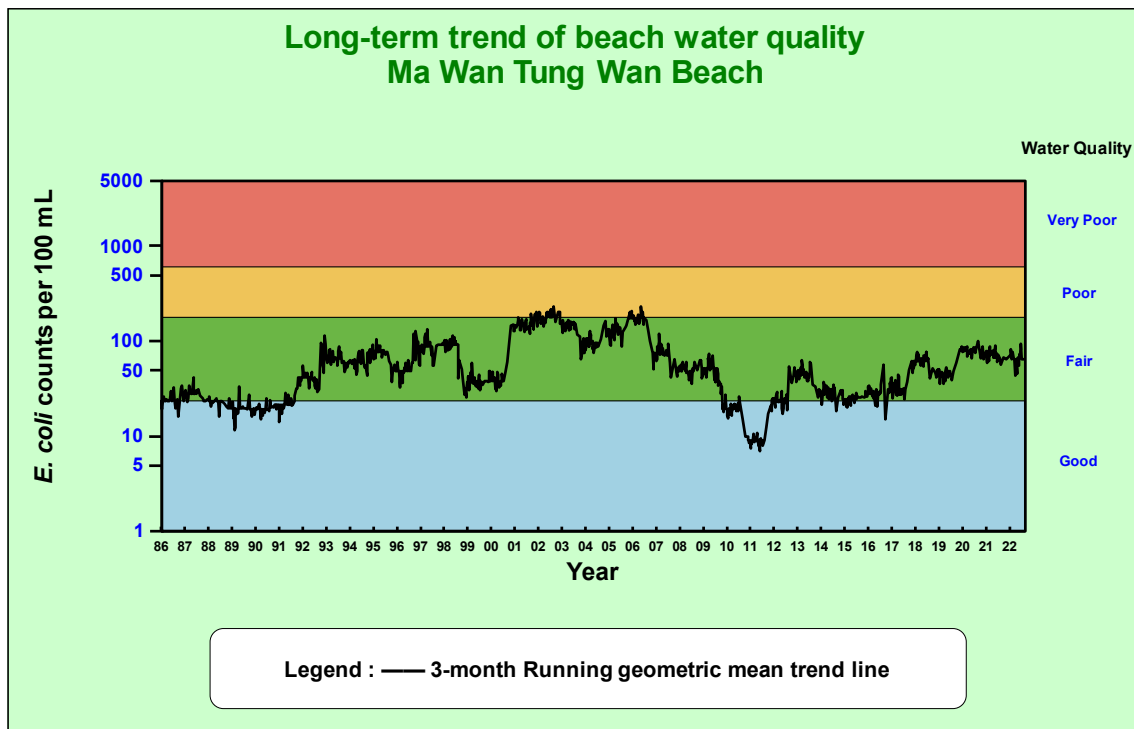
Tsuen Wan District

Appendix D

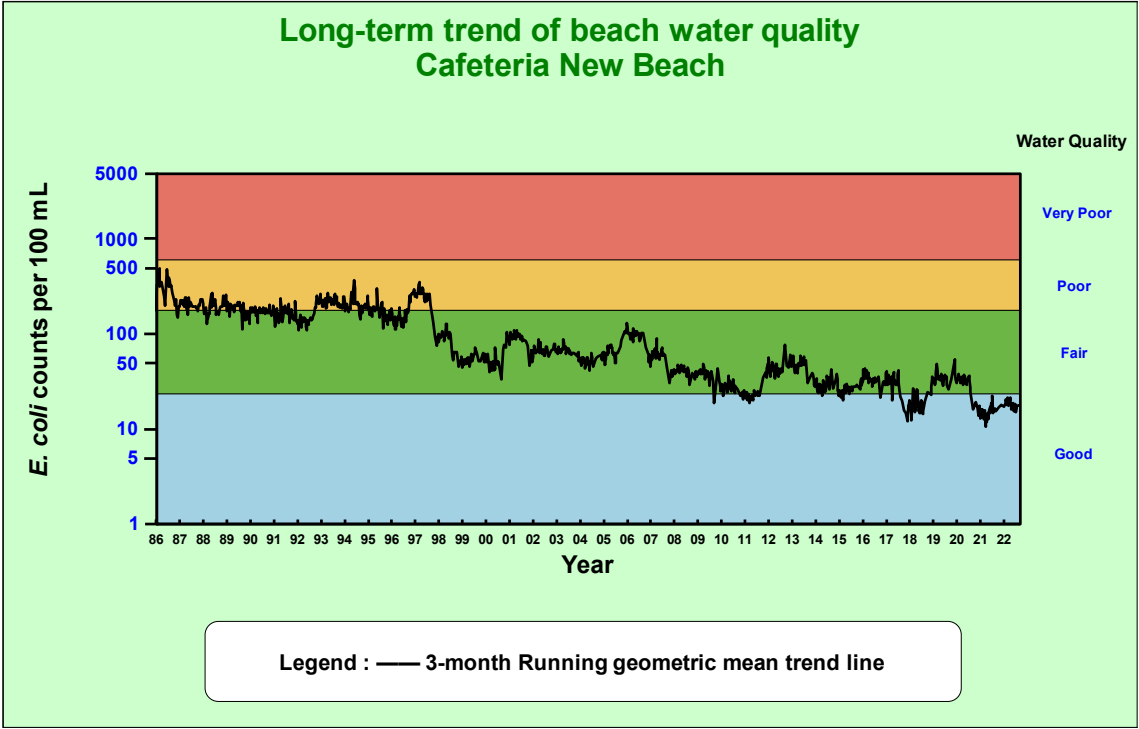
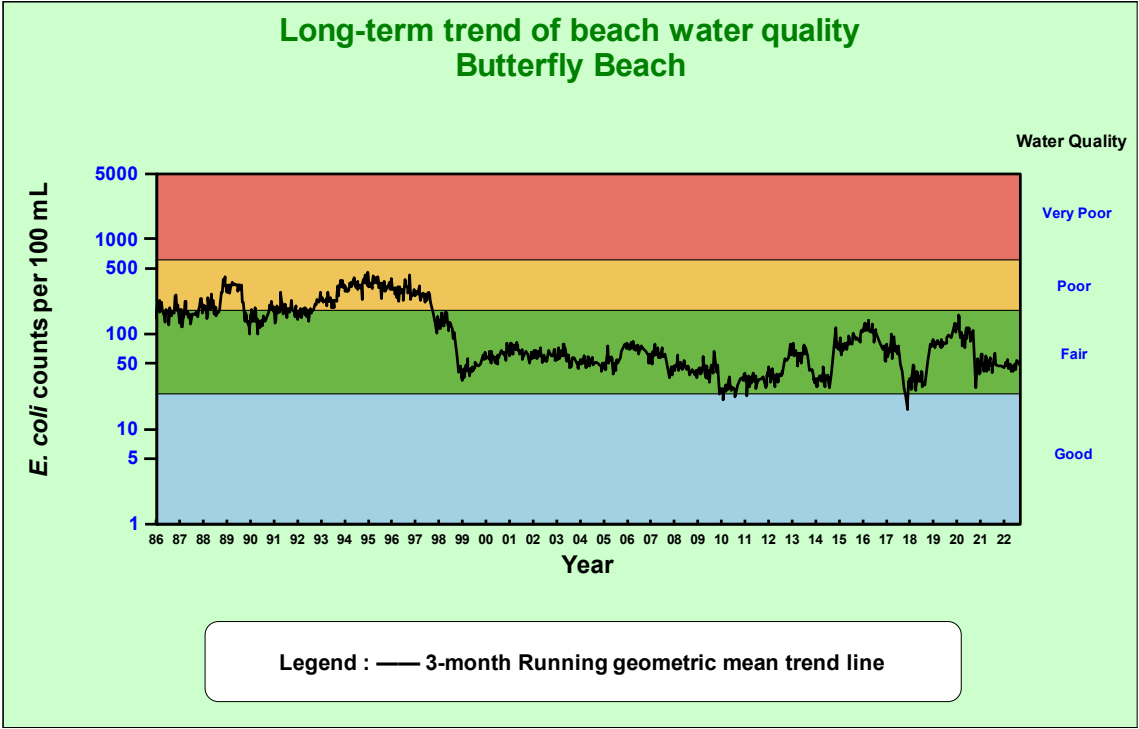


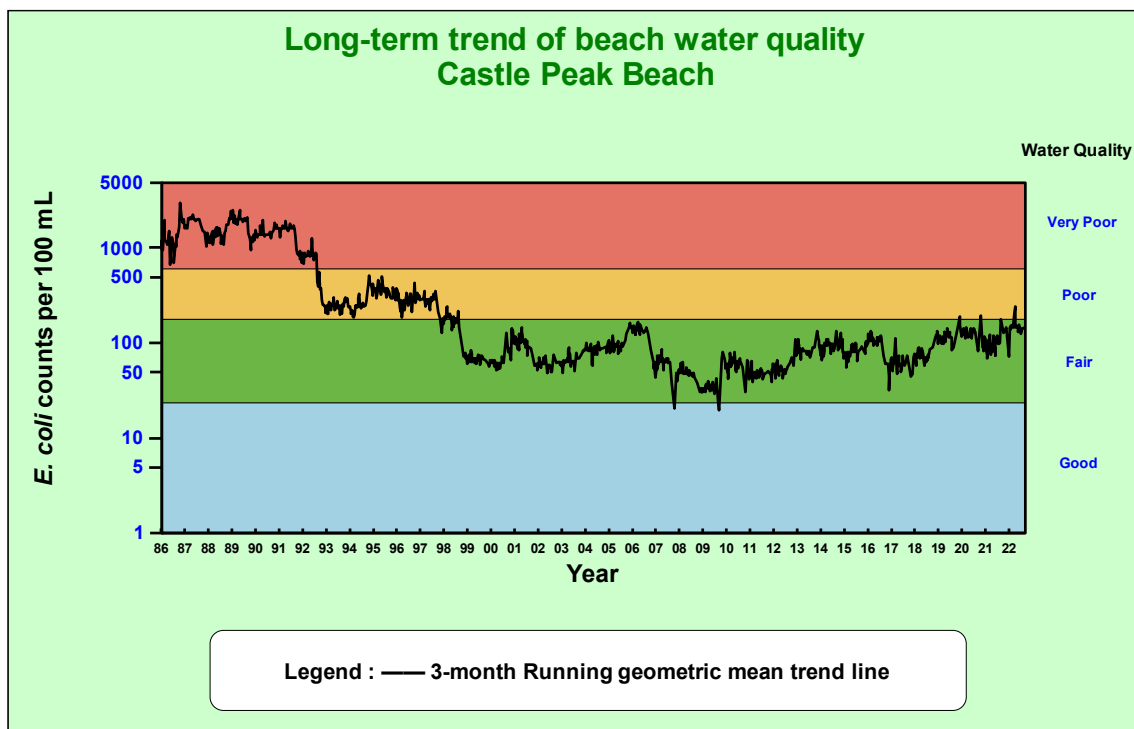
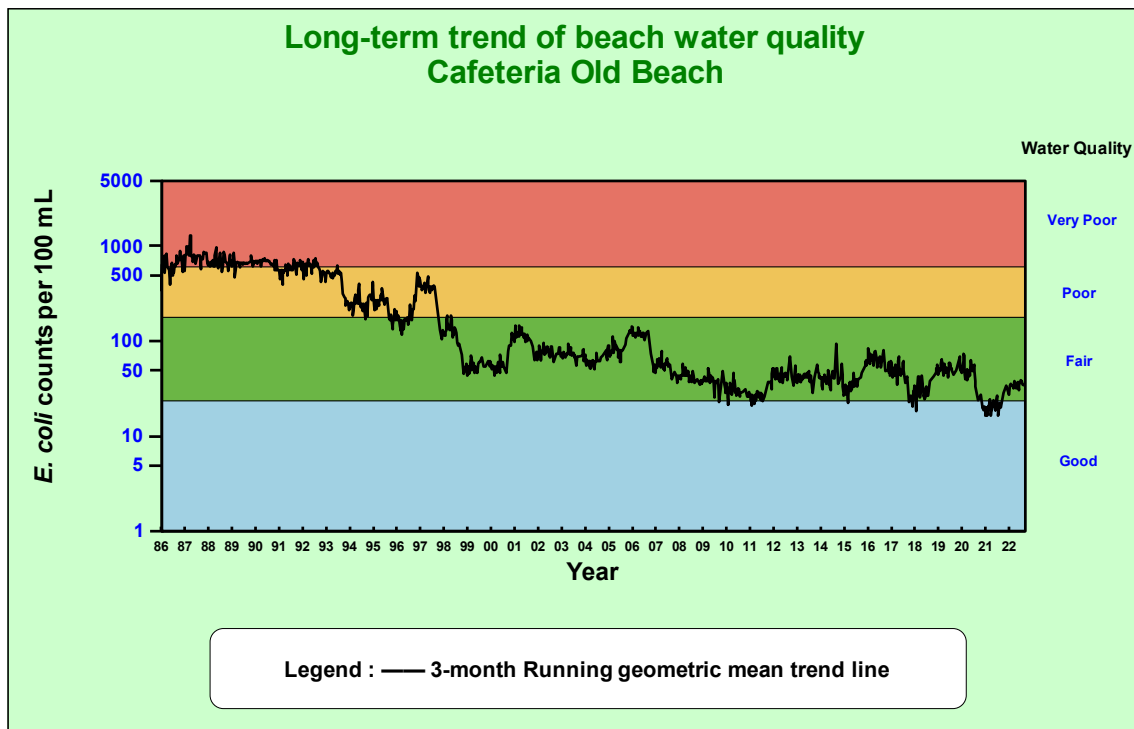


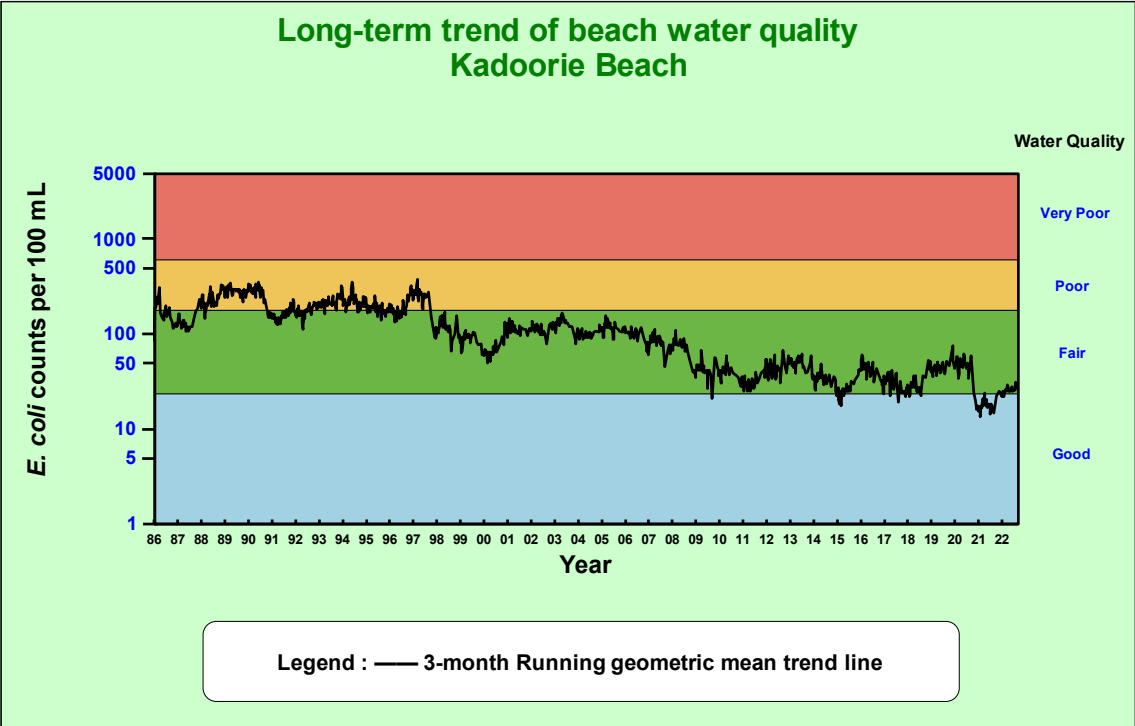
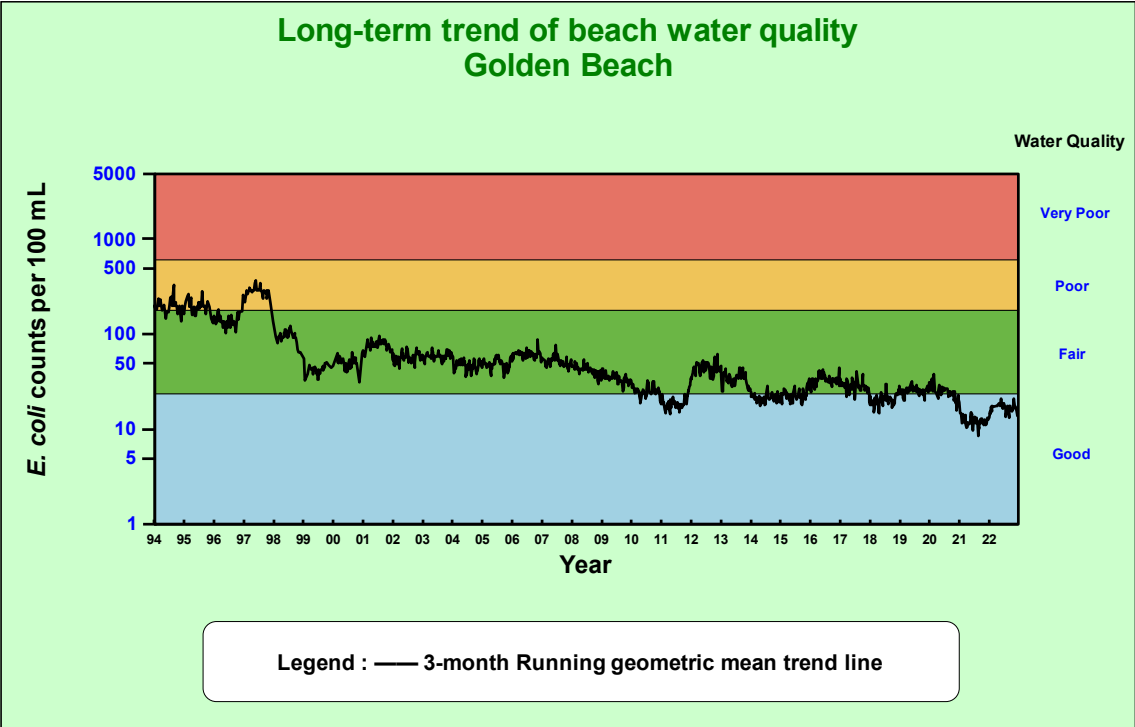




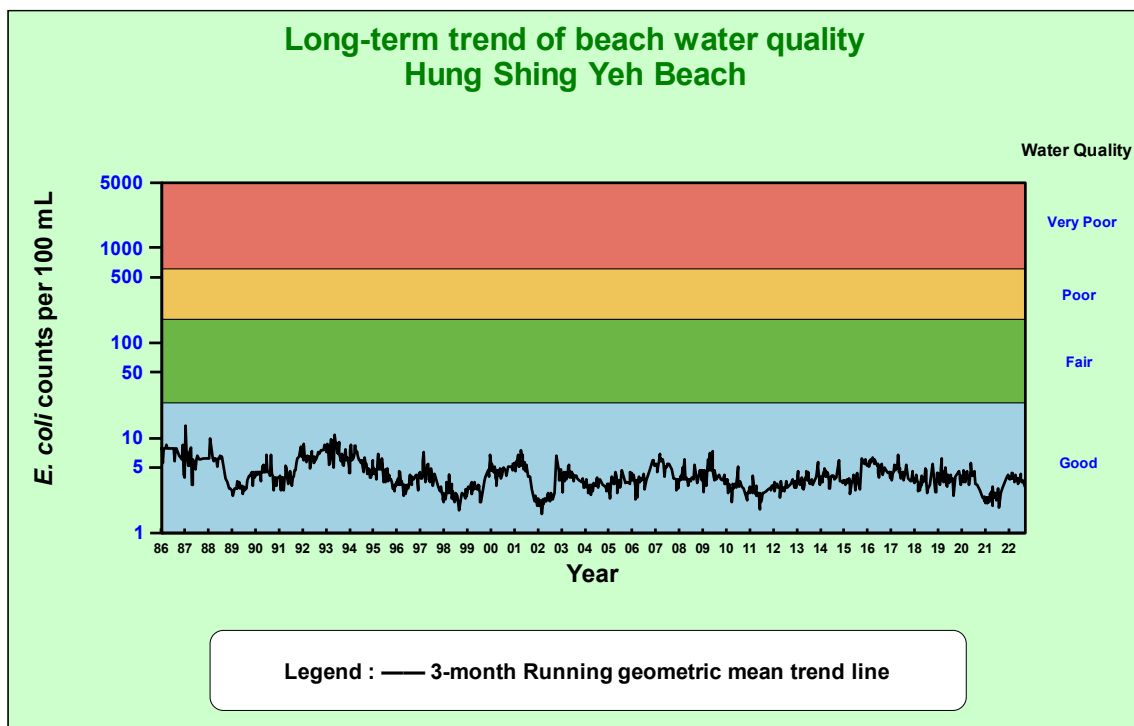
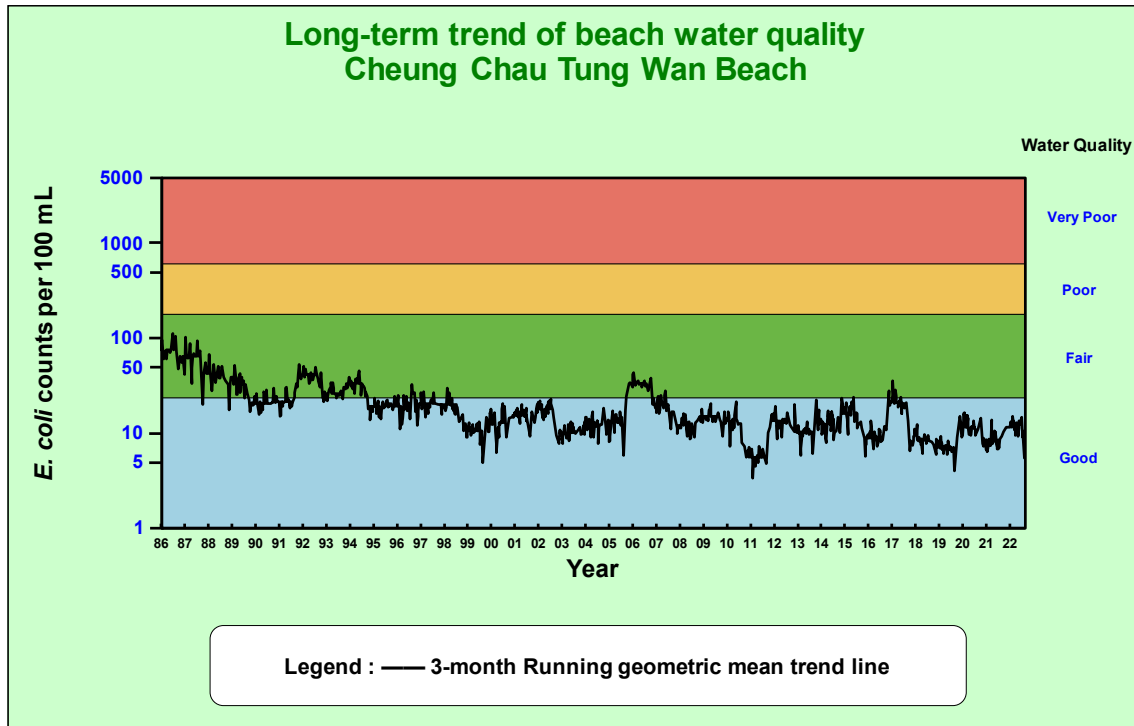
Tuen Mun District

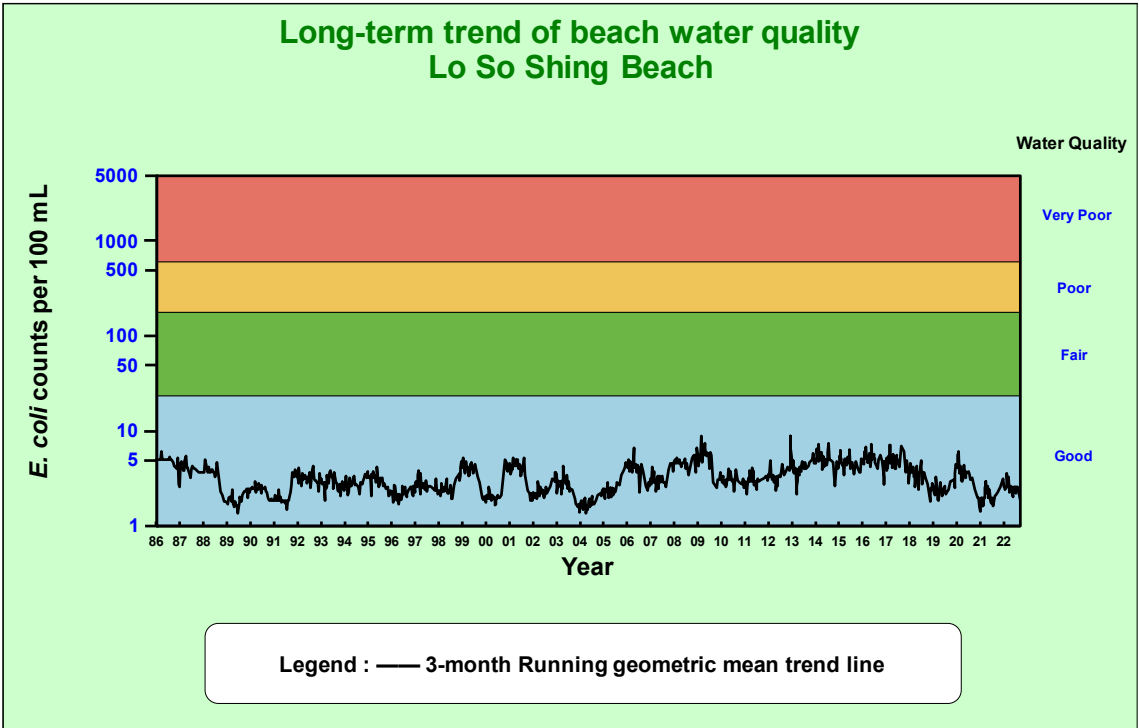
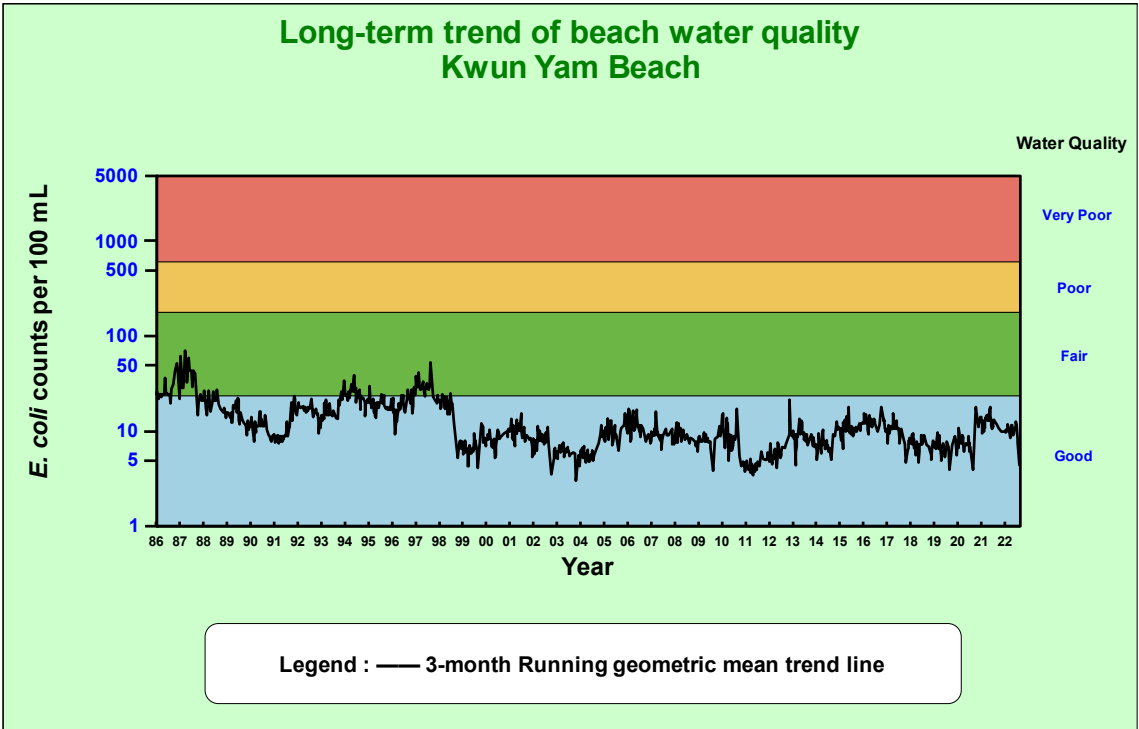


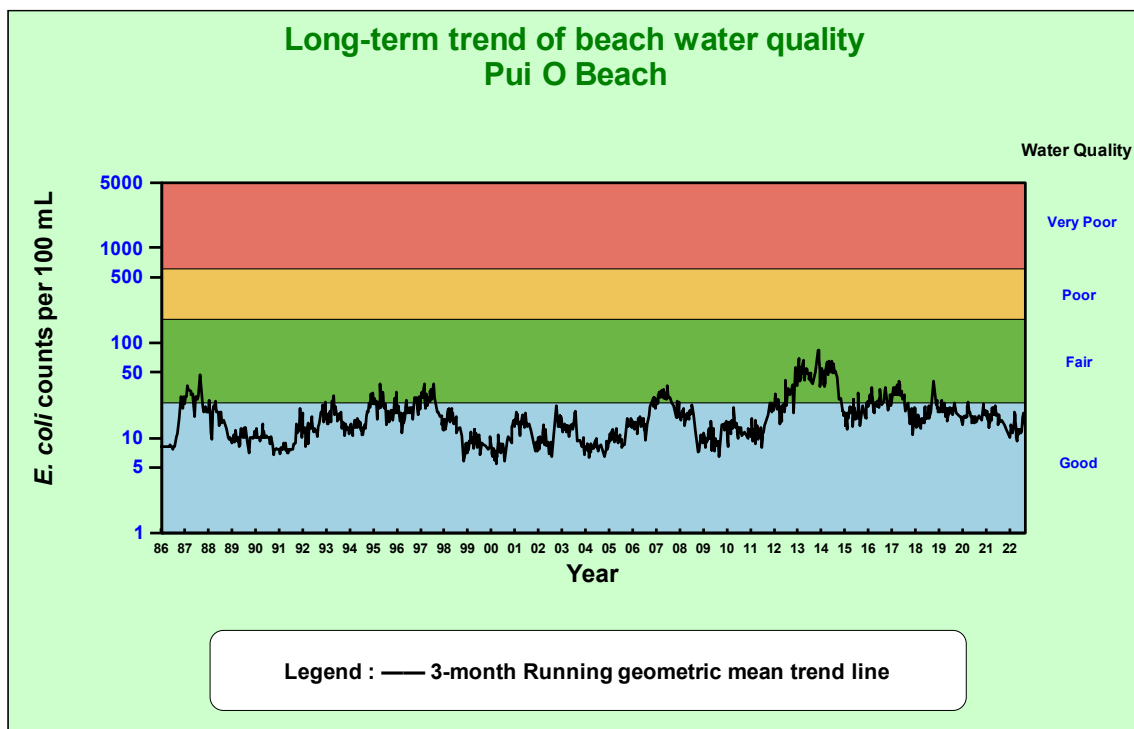
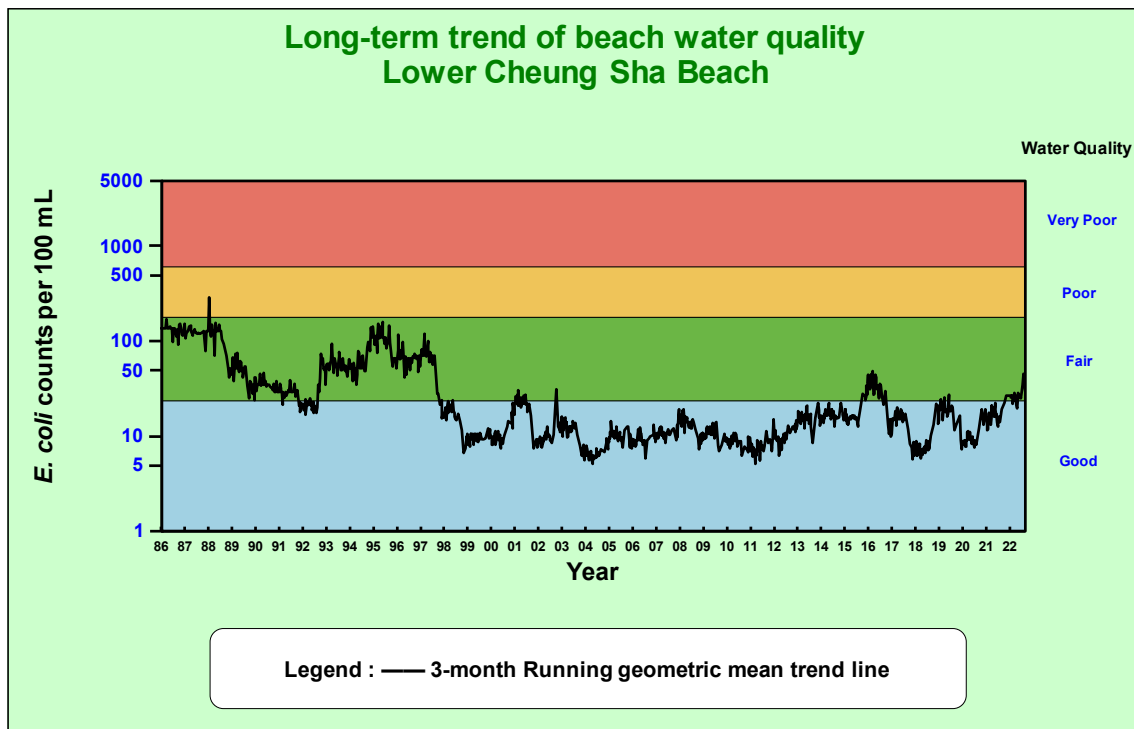


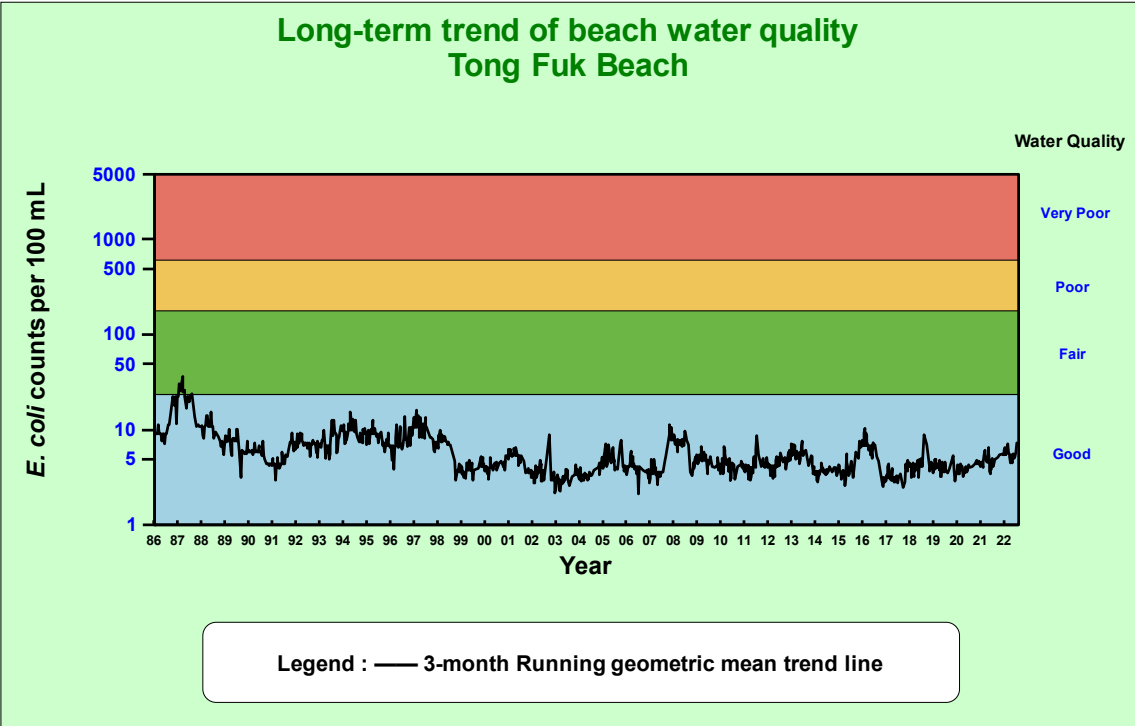
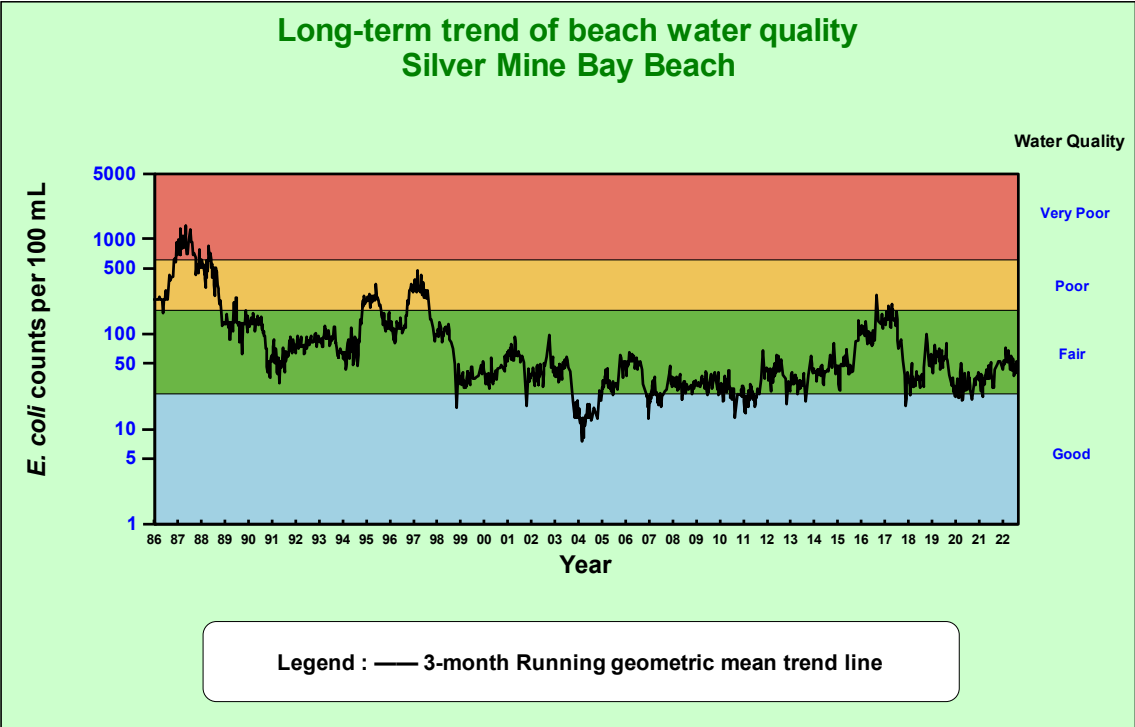


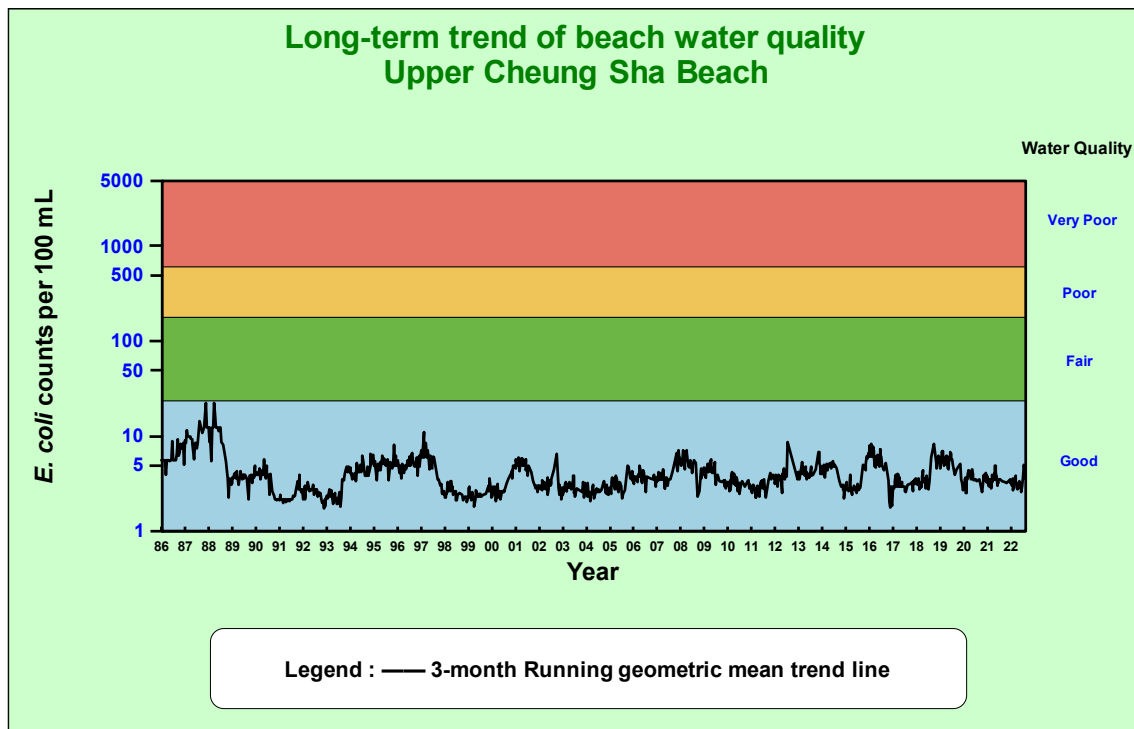
Islands District



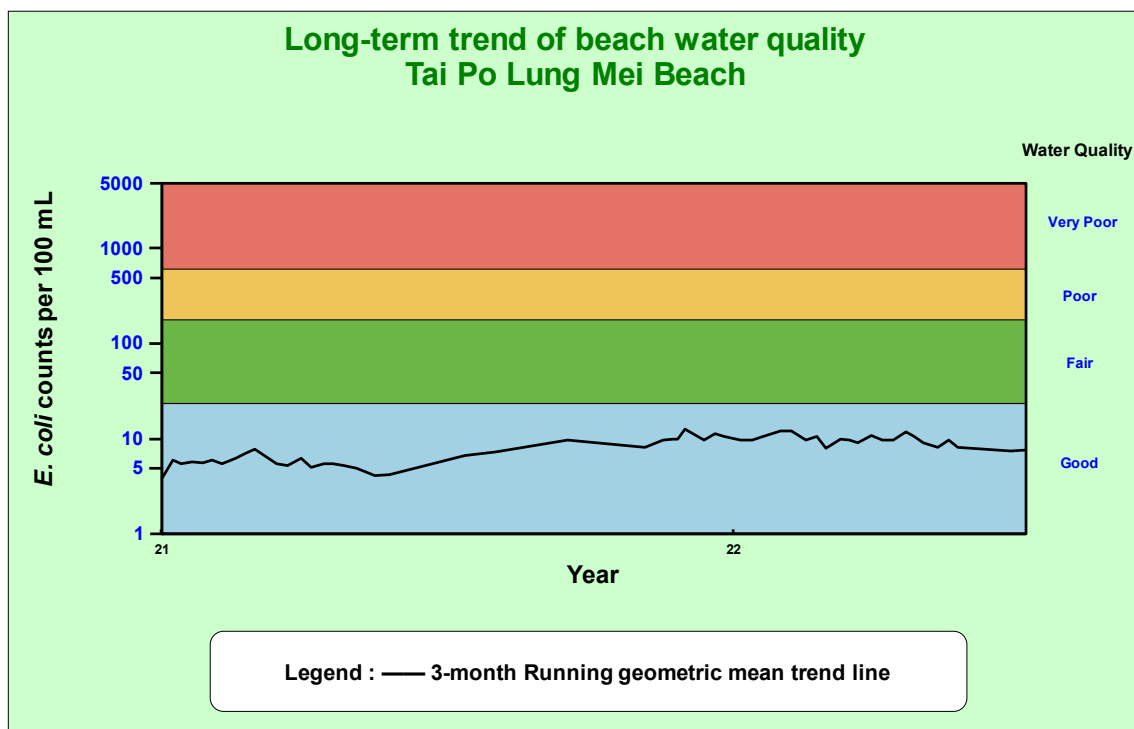








Tai Po District



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