River Water Quality in Hong Kong in 2022

Environmental Protection Department
The Government of the Hong Kong Special Administrative Region

Mission

To conduct a comprehensive and scientific monitoring programme that helps safeguard the health of Hong Kong's rivers and streams and achieve the Water Quality Objectives.

Acknowledgement

We acknowledge the Government Laboratory for undertaking chemical analyses of the water samples.

Abbreviations / 簡稱

Ammonia Nitrogen	NH_4-N	氨氮
Chemical Oxygen Demand	COD	化學需氧量
Dissolved Oxygen	DO	溶解氧
Dry Weather Flow Interceptors	DWFI	旱季截流器
Environmental Protection Department	EPD / 環保署	環境保護署
Escherichia coli	*E. coli*	大腸桿菌
Five-day Biochemical Oxygen Demand	BOD_5	五天生化需氧量
Suspended Solids	SS	懸浮固體
Water Control Zone	WCZ	水質管制區
Water Quality Index	WQI	水質指數
Water Quality Objectives	WQO	水質指標

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1. Introduction

The Environmental Protection Department (EPD) has implemented a comprehensive river water quality monitoring programme since 1986 to provide data for water quality management and pollution control purposes. One or more representative monitoring stations have been set up at the upstream and downstream sections of the main channels and tributaries of large rivers in the New Territories or those flowing through the urban areas. A number of small rivers and streams in rural areas and outlying islands are also monitored.

The monitoring programme serves the following purposes:

- evaluate the pollution status of rivers;
- monitor long-term changes in river water quality;
- provide scientific basis for planning water pollution control strategies;
- assess compliance with the Water Quality Objectives (WQOs); and
- compile Water Quality Index (WQI) to reflect the overall state and trend of the health of rivers.

This report summarises the water quality of rivers and streams covered by EPD's river monitoring programme in 2022. Annual reports can be viewed and downloaded from the EPD's website: https://www.epd.gov.hk/epd/english/environmentinhk/water/hkwqrc/waterquality/river-2.html

2. An Overview of Hong Kong's River Water Quality in 2022

The EPD's river monitoring programme currently covers 30 watercourses and a total of 82 monitoring stations (Appendix A), as compared with 14 watercourses and 47 stations when the programme started in 1986. Apart from field measurements, over 50 physico-chemical and biological parameters, including organic matters, nutrients, metals and *E. coli*, were analysed in the laboratory (Appendix B).

2.1 Compliance Rate of Water Quality Objectives (WQOs)

Five representative parameters, including pH, suspended solids (SS), dissolved oxygen (DO), 5-day biochemical oxygen demand (BOD_5) and chemical oxygen demand (COD), are used to assess compliance with the WQOs applicable for individual monitoring stations in various Water Control Zones (WCZ) (Appendix C and Appendix D). This report presents the annual average compliance rates for individual watercourses as well as the overall compliance rate for the rivers and streams monitored each month in Hong Kong (Appendix E and Appendix F).

The river water quality in Hong Kong in 2022 continued to be satisfactory with an overall WQO compliance rate[1] of 88% which is generally in the range of fluctuations since 2006 (Figure 1). Figure 2 shows the WQO compliance rates for key river water quality parameters since the beginning of the monitoring programme.

In summary, the water quality of Hong Kong's watercourses remained good and steady in 2022 and generally maintained a long-term improvement trend as a result of the implementation of various pollution control measures by the government and the gradual reduction of pollution loading to the rivers and streams.

[1] For rivers that have more than one monitoring stations, the WQO compliance rate was expressed as an average of the annual compliance rates of all their individual monitoring stations. Similarly, the overall WQO compliance rate for Hong Kong's river water quality was the overall average rate for all the river monitoring stations.

Figure 1. Overall WQO compliance rates for Hong Kong's rivers, 1987-2022

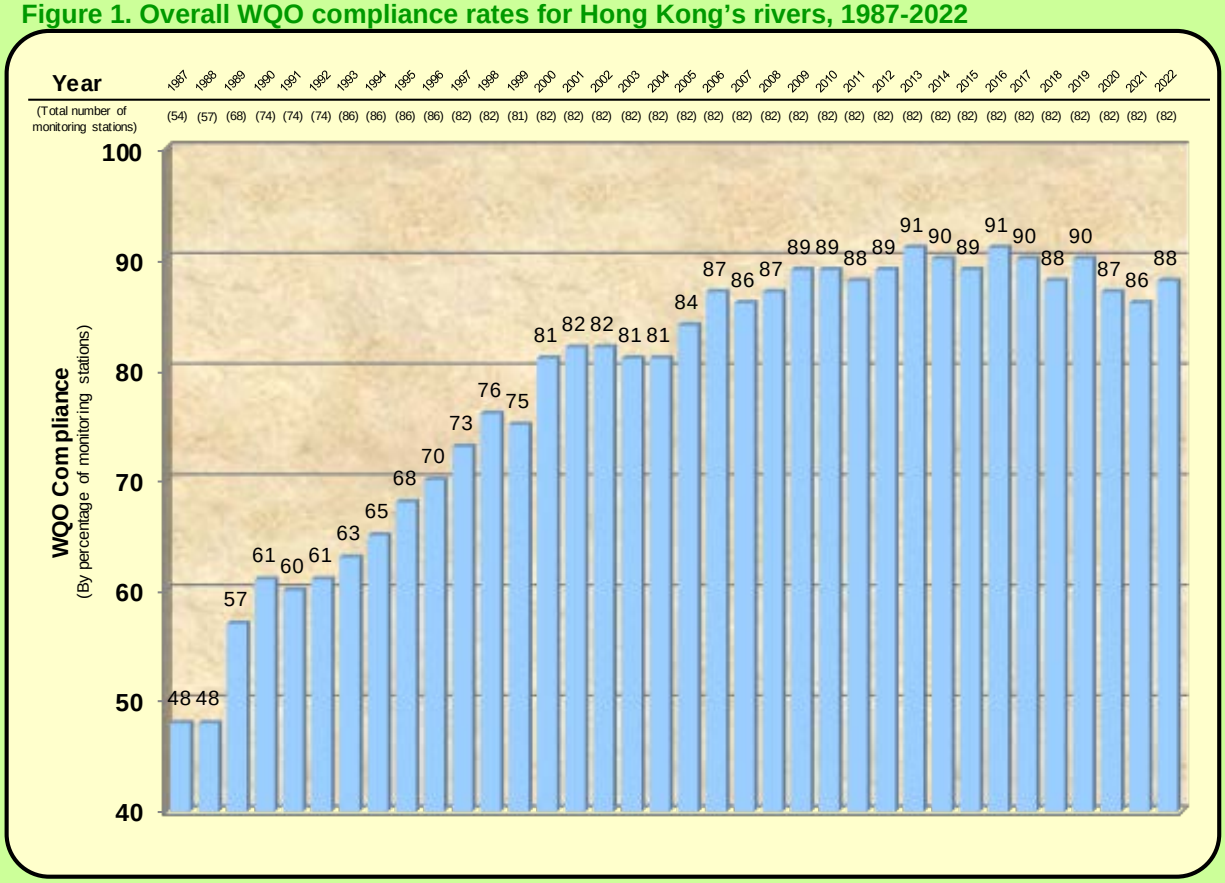

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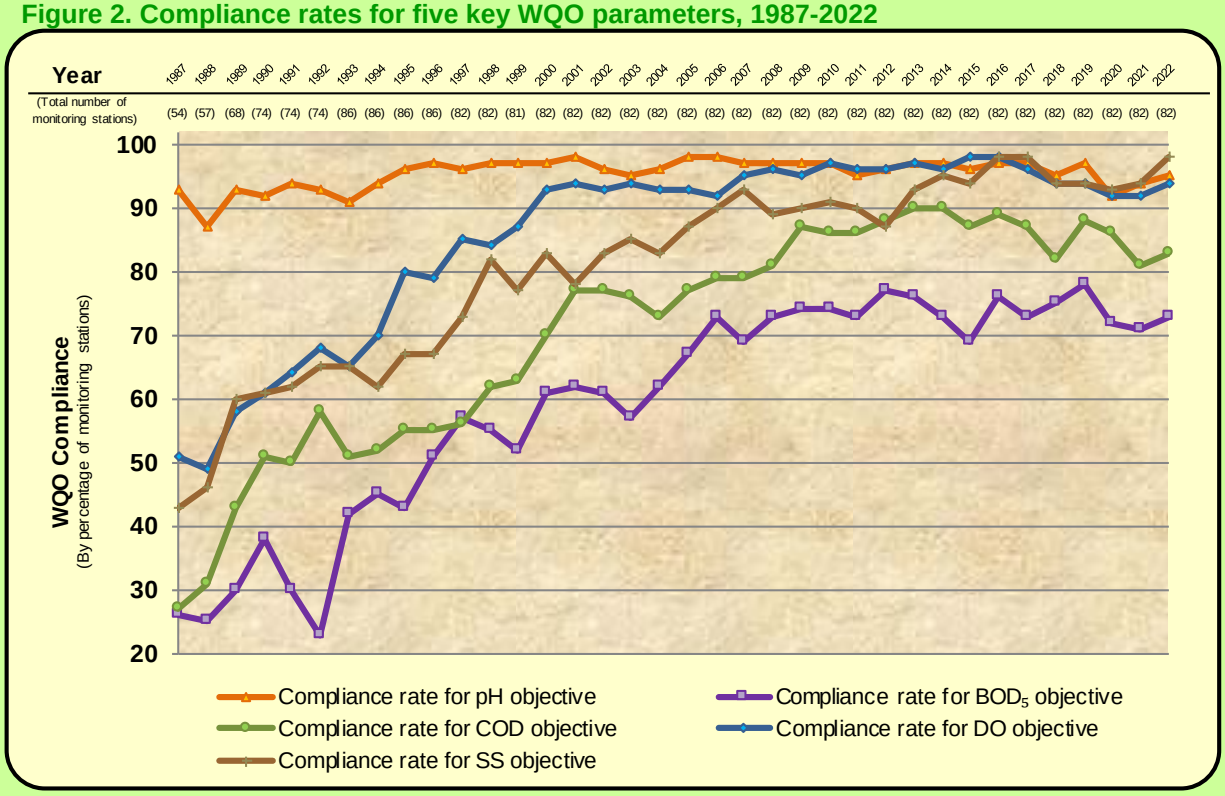
Figure 2. Compliance rates for five key WQO parameters, 1987-2022



2.2 Water Quality Index (WQI) Gradings and *E. coli* levels

The EPD has been using the Water Quality Index (WQI) to indicate the general health of a river (Appendix G). In 2022, 84% of the river monitoring stations were graded as "Good" or "Excellent", as compared with only 26% in 1987 (Figure 3), suggesting that the river water quality has greatly improved and the pollution loadings in these watercourses have been substantially reduced in the past three decades. Majority of the river monitoring stations located in the Eastern New Territories, Southwestern New Territories, Lantau Island and Kowloon fell into these two WQI gradings. For comparison, only 6% of the monitoring stations were graded as "Bad" and none classified as "Very Bad" in 2022, while 54% stations in these two gradings were recorded in 1987. Among the current 82 monitoring stations, small changes in WQI gradings for 15 stations in 2022 were observed, and these are generally within the normal range of natural long-term fluctuations (Figure 3). The distribution of the river monitoring stations and their WQI gradings in 2022 as compared with those of 1987 are shown in Figures 4 and 5, respectively.

Figure 3. Overall WQI gradings for Hong Kong's rivers, 1987-2022

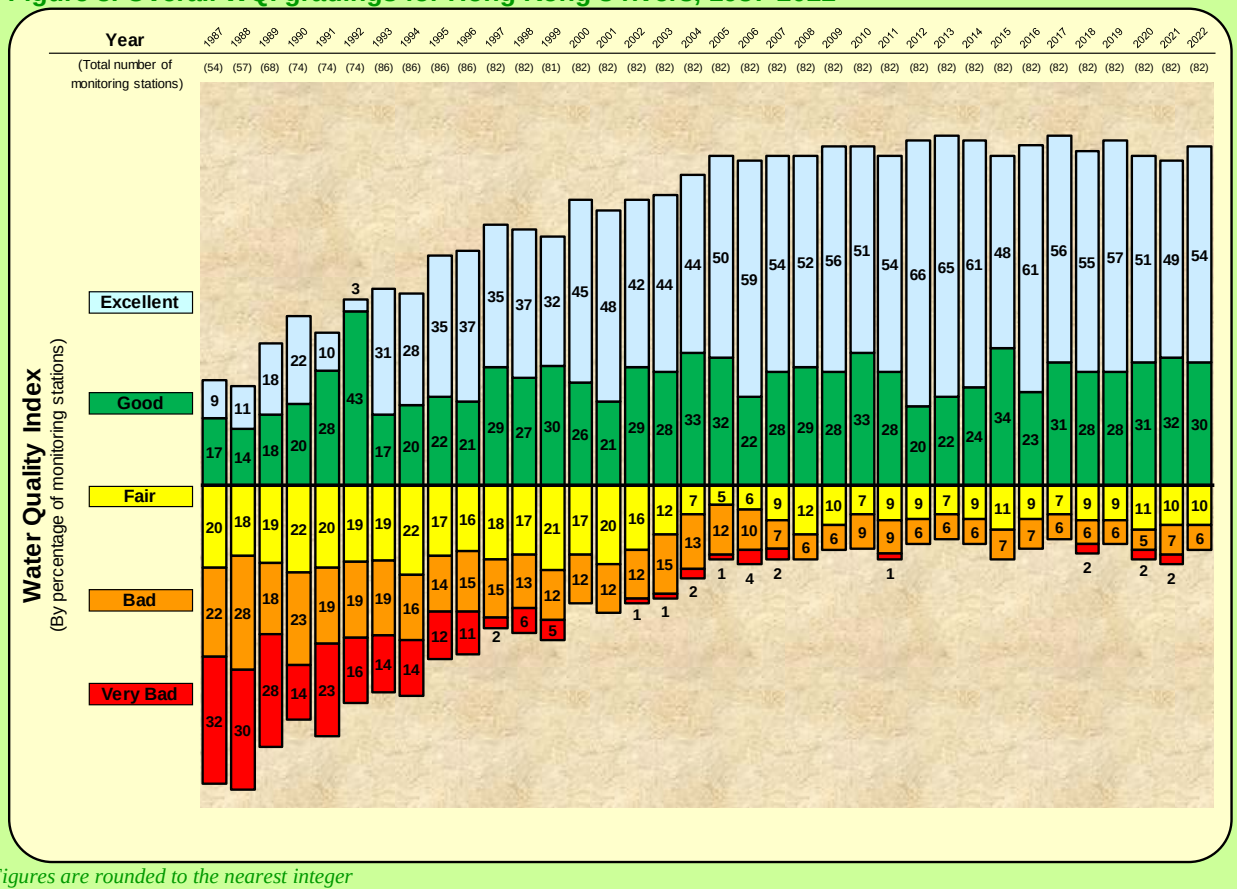


Figure 4. Map of river monitoring stations and their WQI gradings in 2022

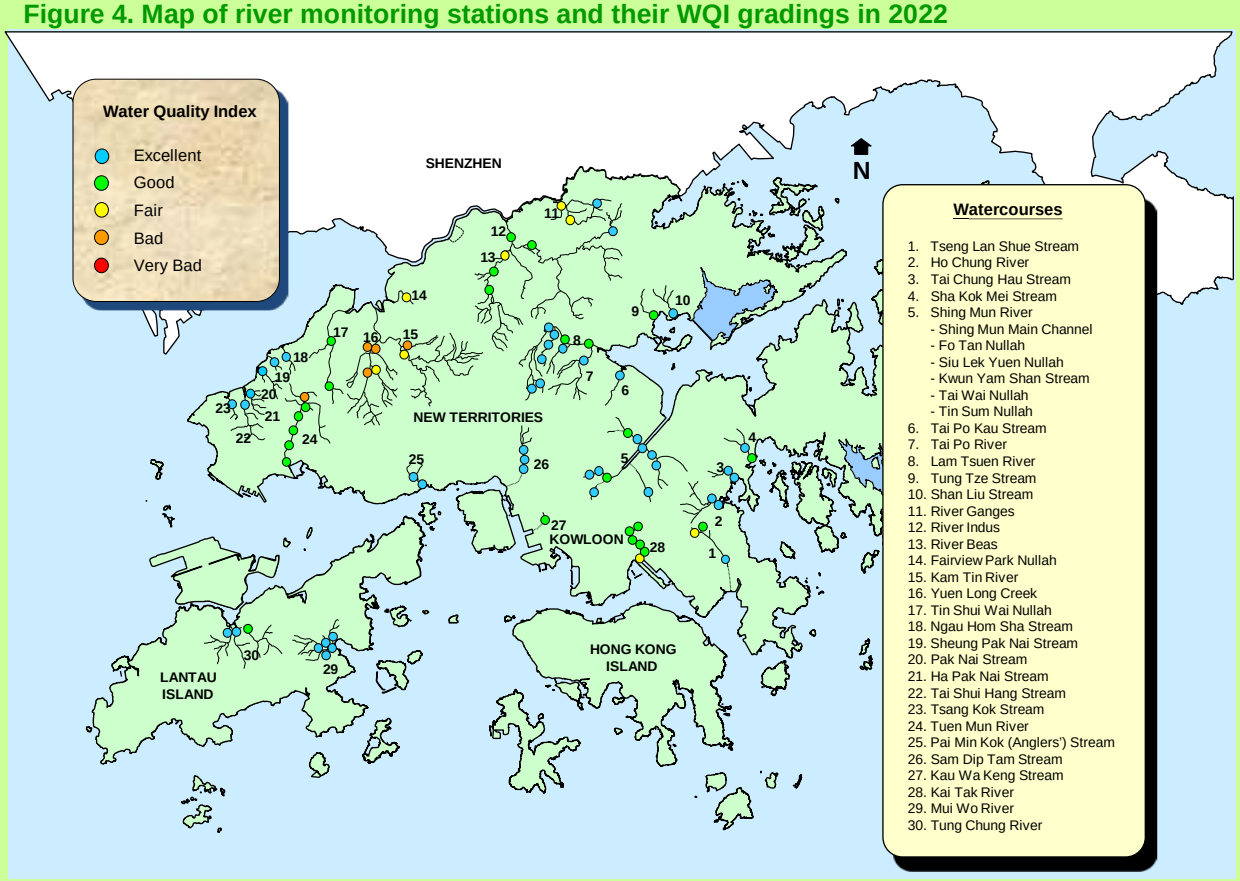
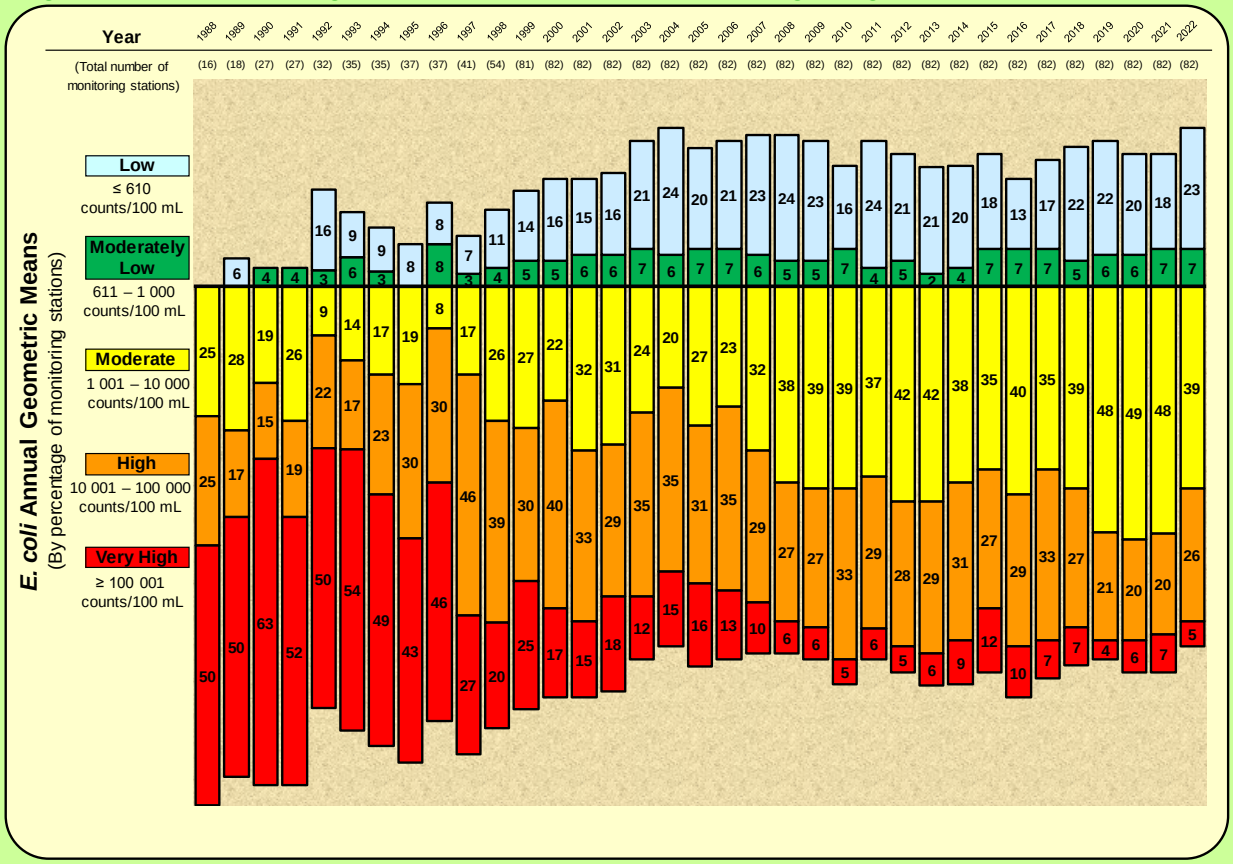


Figure 5. Map of river monitoring stations and their WQI gradings in 1987

In 2022, 30% of the monitoring stations had "Low" or "Moderately Low" levels of *E. coli* (i.e., not exceeding 1 000 counts/100 mL) while 31% stations recorded "High" or "Very High" *E. coli* levels[2] (i.e., over 10 000 counts/100 mL) (Figure 6). The ranges of *E. coli* levels of different monitoring stations in 2022 are shown in Figure 7.

Figure 6. Overall annual geometric mean *E. coli* levels in Hong Kong's rivers, 1988-2022



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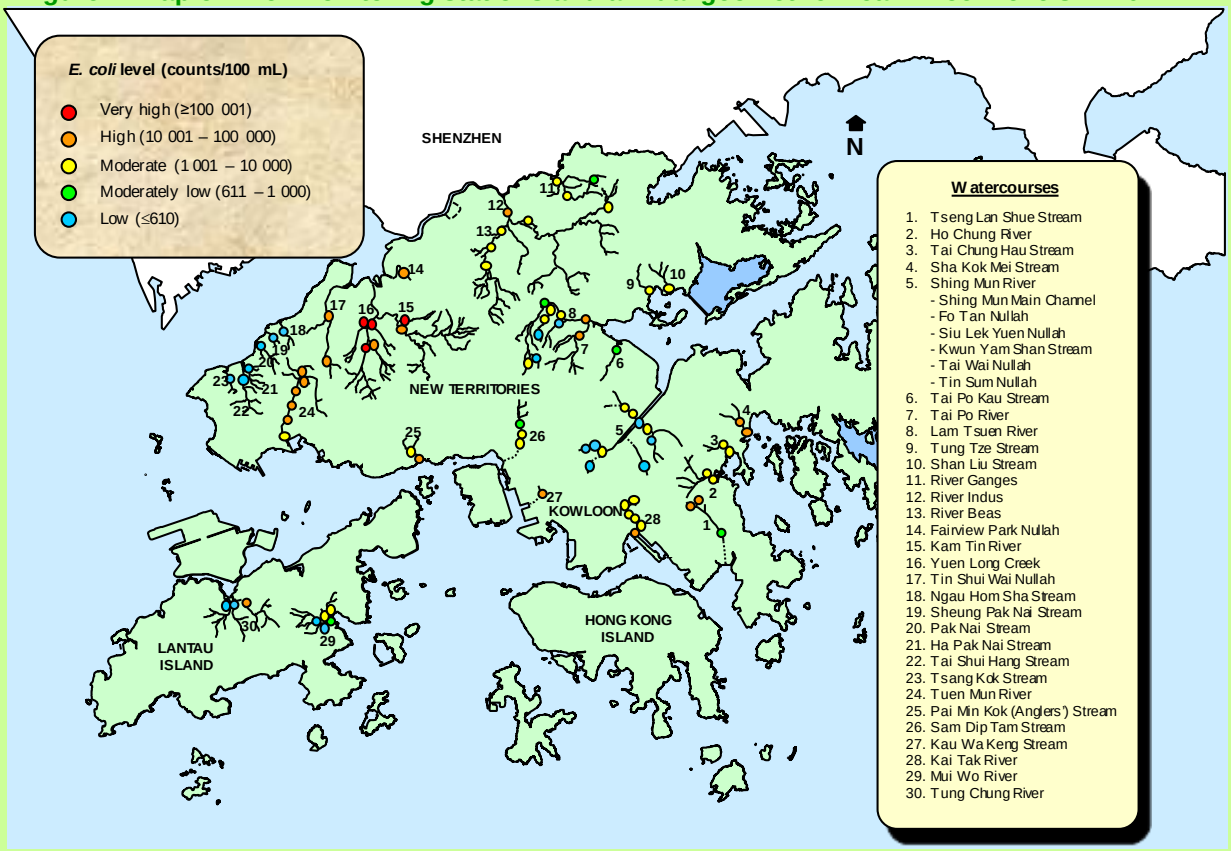
[2] As excreta from all warm-blooded animals (including humans, livestock animals, pets, birds, etc.) contain *E. coli*, the measured level of *E. coli* in a water body has been widely used as an indicator for assessing the presence and extent of faecal contamination. All *E. coli* levels presented in this report are annual geometric means (counts/100 mL).

Figure 7. Map of river monitoring stations and annual geometric mean *E. coli* levels in 2022



3. Water Quality of Rivers and Streams in Various Districts

3.1 Eastern New Territories

The EPD monitored ten watercourses in the Eastern New Territories, six of which, i.e., Shing Mun River, Lam Tsuen River, Tai Po River, Tai Po Kau Stream, Shan Liu Stream and Tung Tze Stream, are located in the Tolo Harbour and Channel WCZ. Ho Chung River, Sha Kok Mei Stream and Tai Chung Hau Stream are situated in the Port Shelter WCZ, while Tseng Lan Shue Stream is within the Junk Bay WCZ.

The water quality of rivers and streams in the Eastern New Territories is generally good. In 2022, the overall WQO compliance rate of all river monitoring stations in these areas remained high at 95%, as compared with 74% in 1992. Tai Po Kau Stream in these areas fully met the WQOs in 2022 (Figure 8).

Shing Mun River has three main tributaries and runs through the densely populated Sha Tin urban area. The river has shown marked improvement over the past three decades, and maintained a high WQO compliance rate of 94% in 2022. The rivers in the Tai Po District also achieved high WQO compliance in 2022. Lam Tsuen River, the major river draining through the urban area of Tai Po and joining Tai Po River before entering Tolo Harbour, achieved 97% compliance rate. The compliance rates for Tung Tze Stream also reached 97% (Figure 8).

In the Port Shelter WCZ, Ho Chung River, Sha Kok Mei Stream and Tai Chung Hau Stream achieved high WQO compliance of 99%, 95% and 92% respectively in 2022 (Figure 8).

Tseng Lan Shue Stream in the Junk Bay WCZ obtained a WQO compliance rate of 89% in 2022 (Figure 8).

As for the WQI gradings, 31 out of the 32 river monitoring stations in the Eastern New Territories (or 97%) were rated as “Good” or “Excellent” in 2022, same as the situation in 2021 (Figures 9 to 13). No monitoring station was graded as “Bad” or “Very Bad”.

Figure 8. WQO compliance rates (%) for rivers and streams in Eastern New Territories over the past three decades

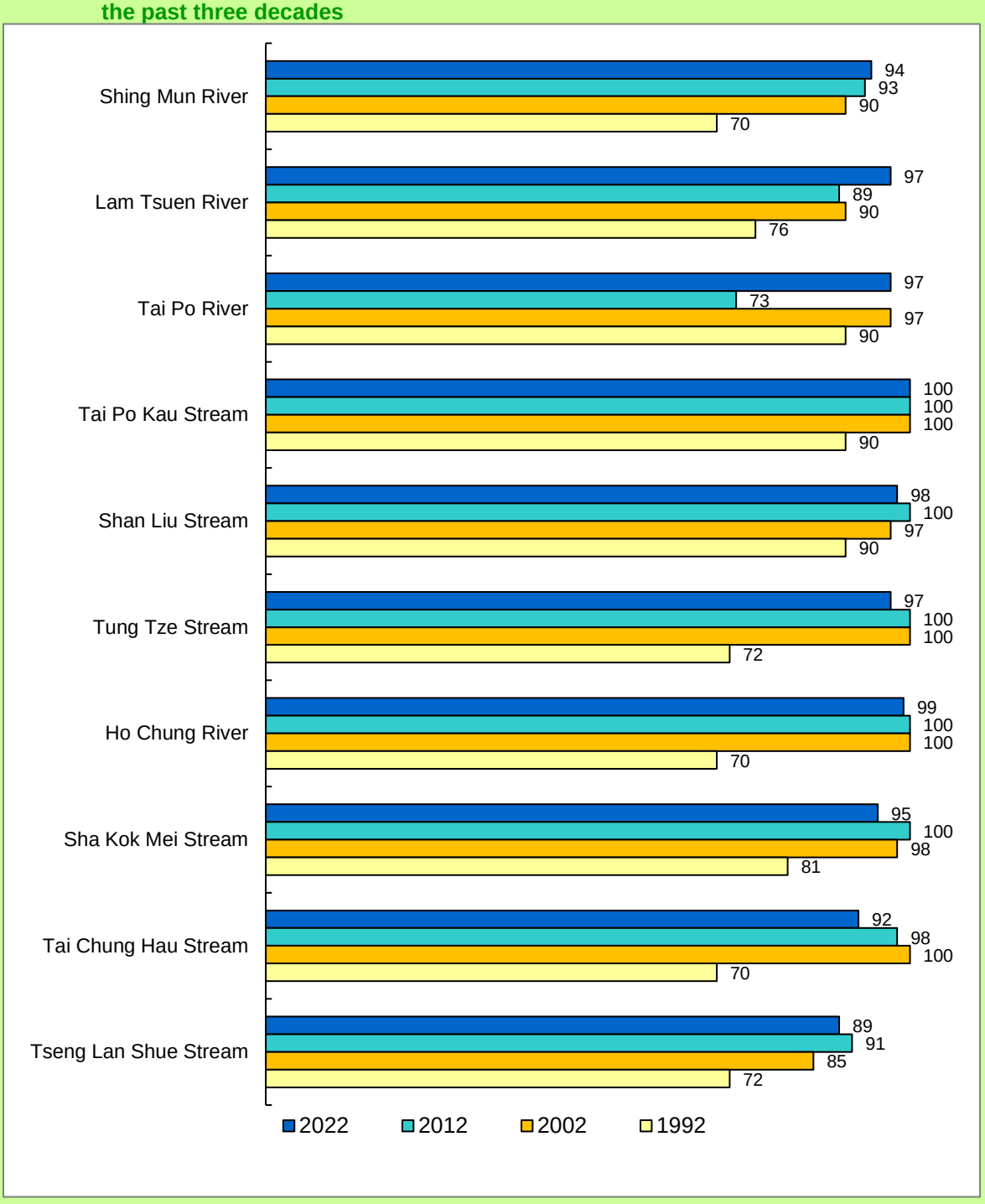


Figure 9. WQI gradings and *E. coli* levels in Shing Mun River

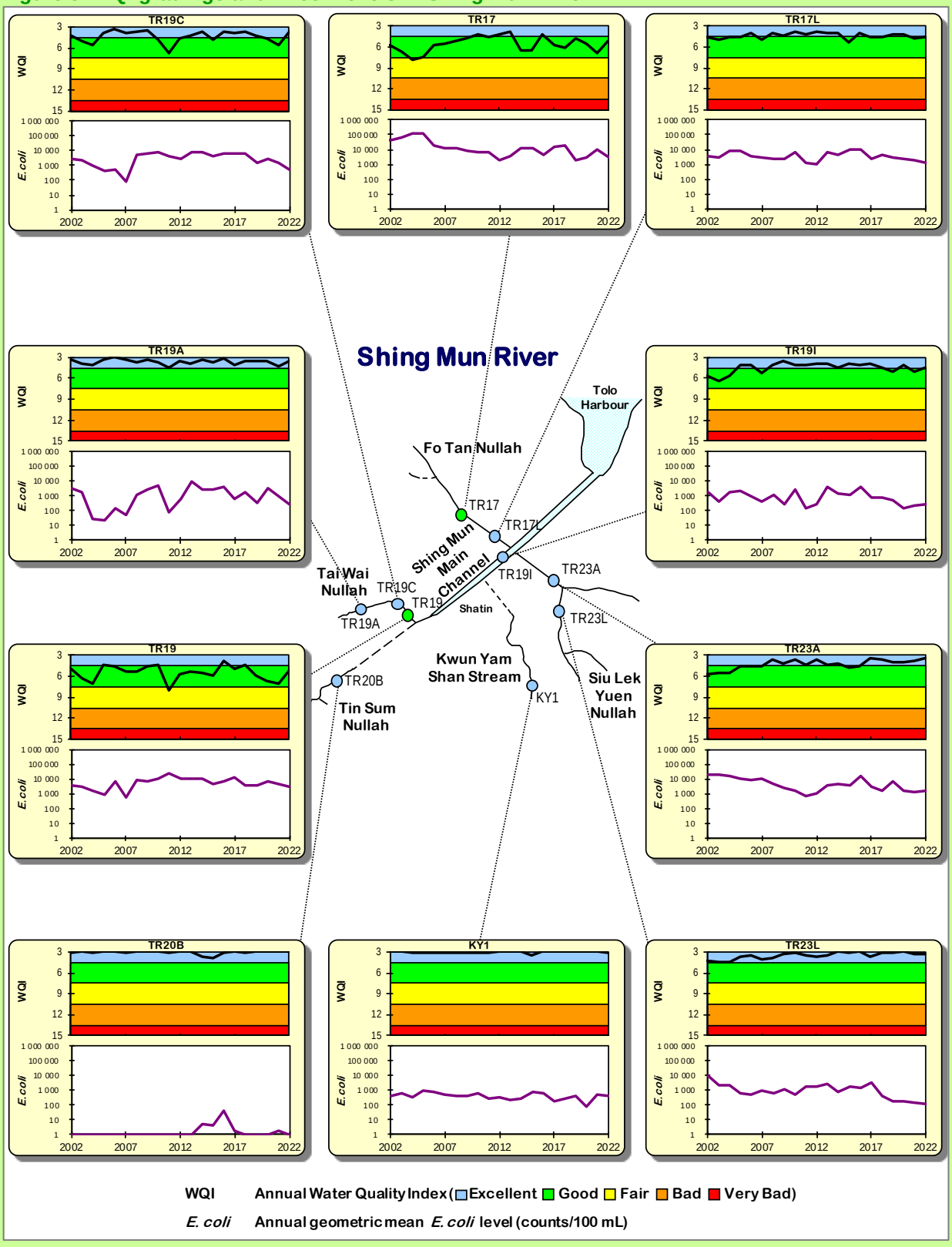


Figure 10. WQI gradings and *E. coli* levels in Lam Tsuen River and Tai Po River

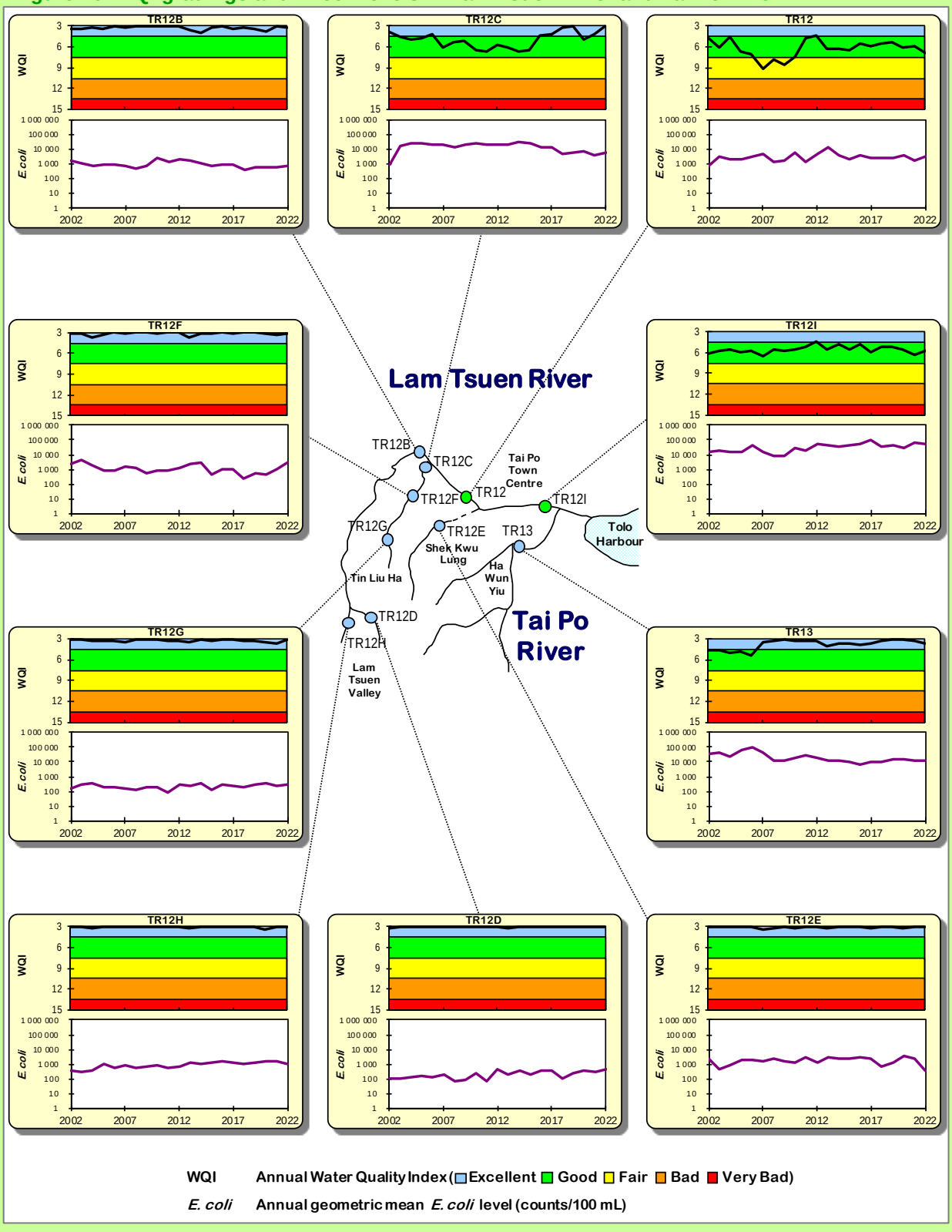


Figure 11. WQI gradings and *E. coli* levels in Tai Po Kau Stream, Shan Liu Stream and Tung Tze Stream

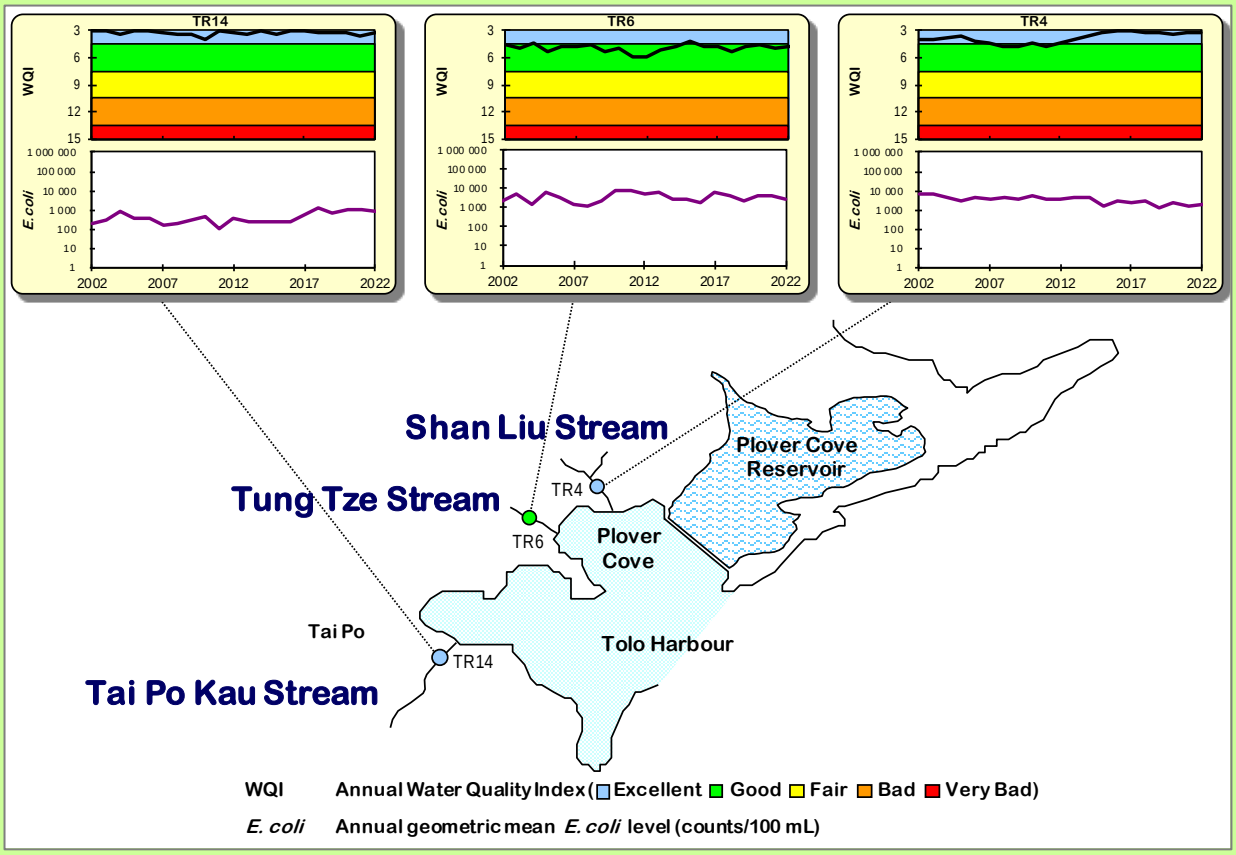


Figure 12. WQI gradings and *E. coli* levels in Tseng Lan Shue Stream

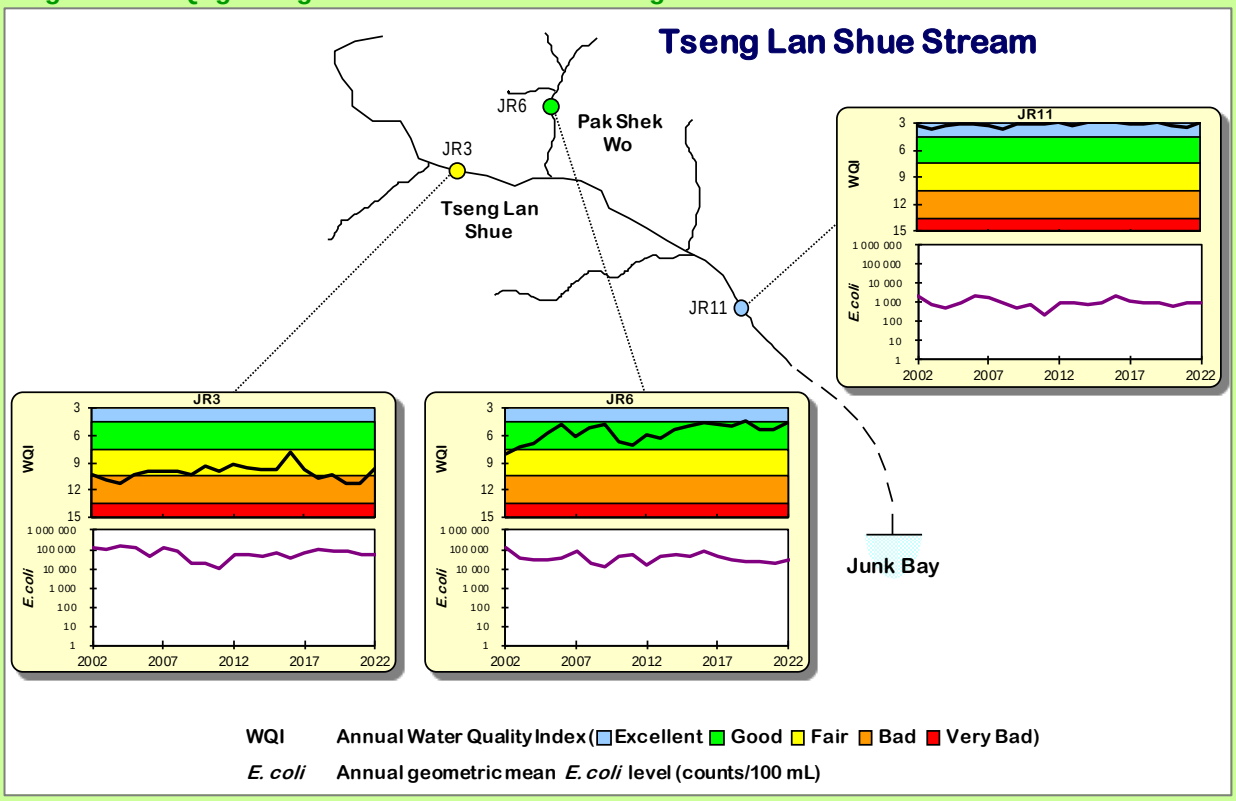
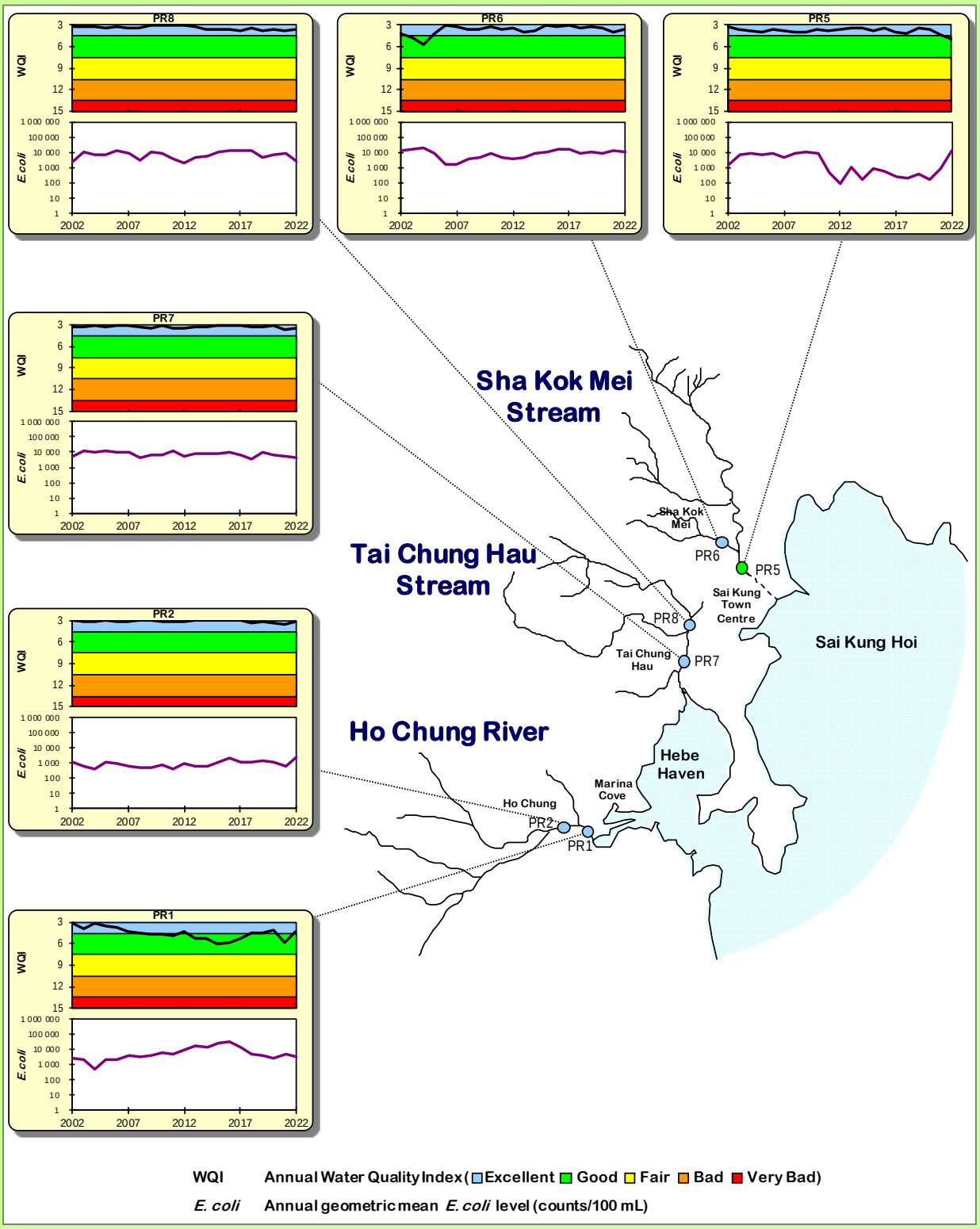


Figure 13. WQI gradings and *E. coli* levels in Ho Chung River, Tai Chung Hau Stream and Sha Kok Mei Stream



3.2 Northwestern New Territories

The EPD monitors 13 rivers and streams draining into Shenzhen River or directly into Deep Bay (Shenzhen Bay). These include River Indus, River Beas and River Ganges in the North District; Yuen Long Creek, Kam Tin River, Tin Shui Wai Nullah and Fairview Park Nullah in the Yuen Long District, as well as 6 smaller streams located around the Lau Fau Shan area.

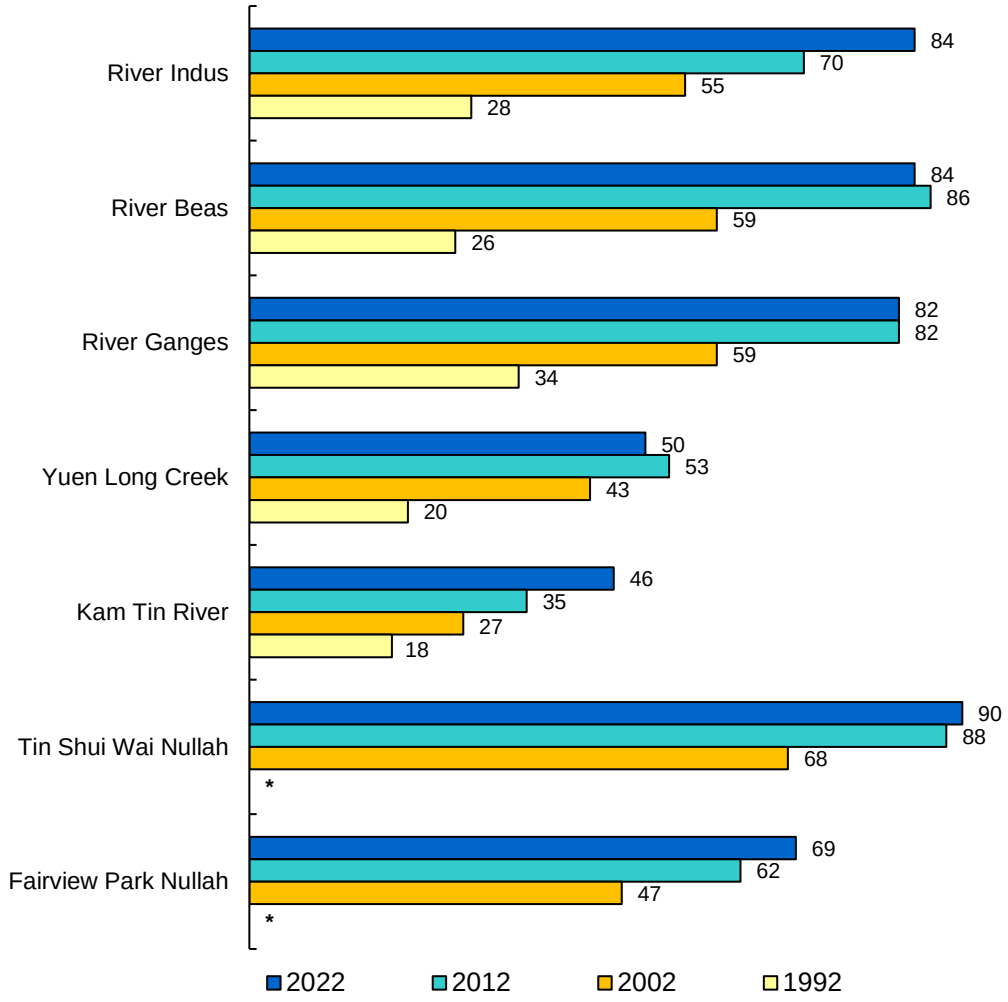
Water quality of the rivers and streams in the Northwestern New Territories has showed progressive and noticeable improvements over the past three decades. In 2022, the overall WQO compliance rate of all monitoring stations in these districts was 78%, as compared with 63% in 2002 and 40% in 1992.

River Indus is a major river in the North District. It collects surface runoffs from densely populated Fanling and Sheung Shui urban areas before joining River Beas, and subsequently drains into Shenzhen River. The overall WQO compliance rate was 84% in 2022, as compared with 28% in 1992 (Figure 14). The three monitoring stations (IN1, IN2 and IN3) situated along the river maintained WQI gradings of “Good” to “Excellent” in 2022 (Figure 16).

As a tributary of River Indus, River Beas recorded an overall WQO compliance rate of 84% in 2022, as compared with 26% in 1992 (Figure 14). Its three monitoring stations (RB1, RB2 and RB3) achieved “Fair” to “Good” WQI gradings in 2022 (Figure 16).

River Ganges obtained an overall WQO compliance rate of 82% in 2022, as compared with 34% in 1992 (Figure 14). The upstream station (GR3) maintained “Excellent” WQI grading in 2022, while both mid-stream station (GR2) and downstream station (GR1) remained “Fair” in WQI grading (Figure 16).

Figure 14. WQO compliance rates (%) for rivers and streams in Northwestern New Territories over the past three decades



* Tin Shui Wai Nullah and Fairview Park Nullah were not covered by the river monitoring programme in 1992.

As a major river in the Yuen Long District, Yuen Long Creek passes through rural areas as well as the densely populated Yuen Long Kau Hui and new town area, before merging with Kam Tin River and flowing into Deep Bay. In 2022, the overall WQO compliance rate for Yuen Long Creek was 50%, as compared with 20% in 1992. For Kam Tin River, the overall WQO compliance rate in 2022 was 46%, as compared with 18% in 1992 (Figure 14).

The two upstream monitoring stations (YL1 and YL2) of Yuen Long Creek remained "Bad" and "Fair" WQI gradings respectively in 2022, while the downstream stations (i.e. YL3 and YL4) were both graded as “Bad” in 2022 (Figure 17). The two monitoring stations (KT1 and KT2) at Kam Tin River were graded as “Fair” and “Bad”, respectively in 2022.

Tin Shui Wai Nullah obtained an overall WQO compliance of 90% in 2022 (Figure 14). The upstream monitoring station (TSR2) and downstream station (TSR1) were both graded as "Good" in 2022 (Figure 17).

The station at the Fairview Park Nullah (FVR1) recorded a WQO compliance rate of 69% in 2022, as compared with 47% in 2002 (Figure 14). Its WQI grading remained "Fair" in 2022 (Figure 17).

In 2022, all 6 smaller streams in the Lau Fau Shan area maintained good water quality and five of them fully met the WQOs (Figure 15), same as the situation in 2021. The WQO compliance rate for the station at Ngau Hom Sha Stream (DB6) was 96% in 2022. All 6 streams maintained "Excellent" WQI grading in 2022 (Figure 18).

Figure 15. WQO compliance rates (%) for smaller streams in Lau Fau Shan area over the past three decades

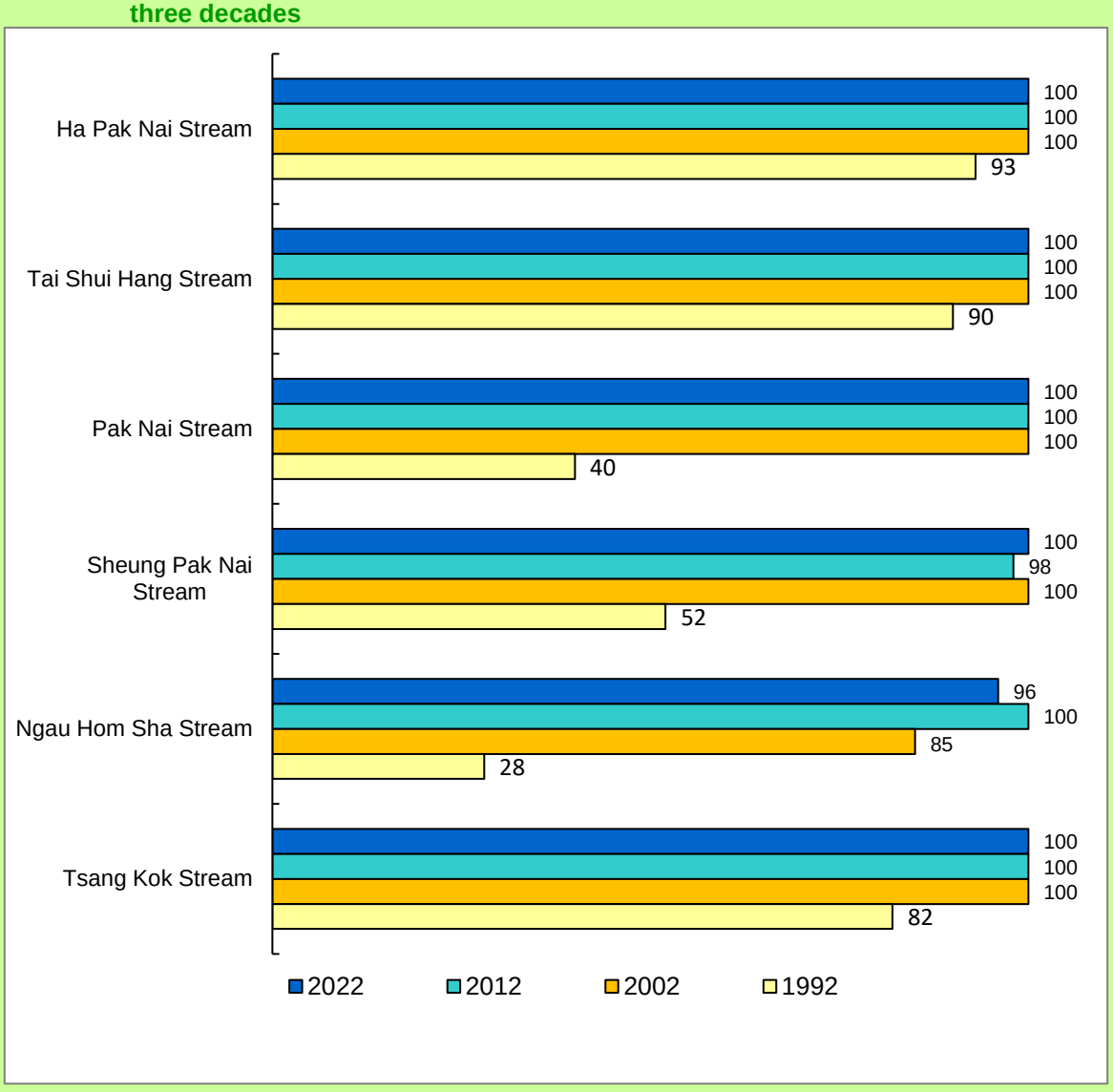


Figure 16. WQI gradings and *E. coli* levels in River Indus, River Beas and River Ganges

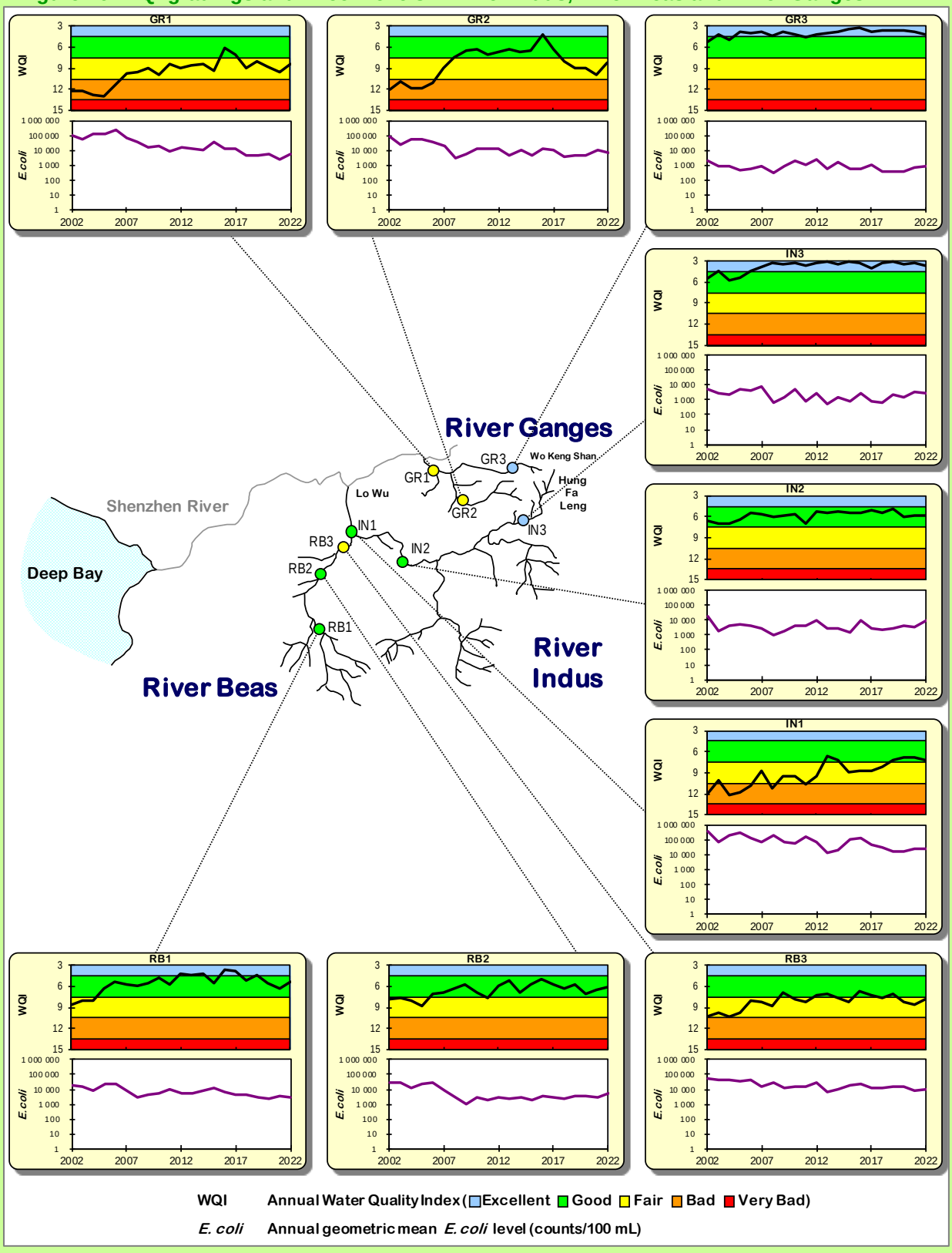


Figure 17. WQI gradings and *E. coli* levels in Yuen Long Creek, Kam Tin River, Tin Shui Wai Nullah and Fairview Park Nullah

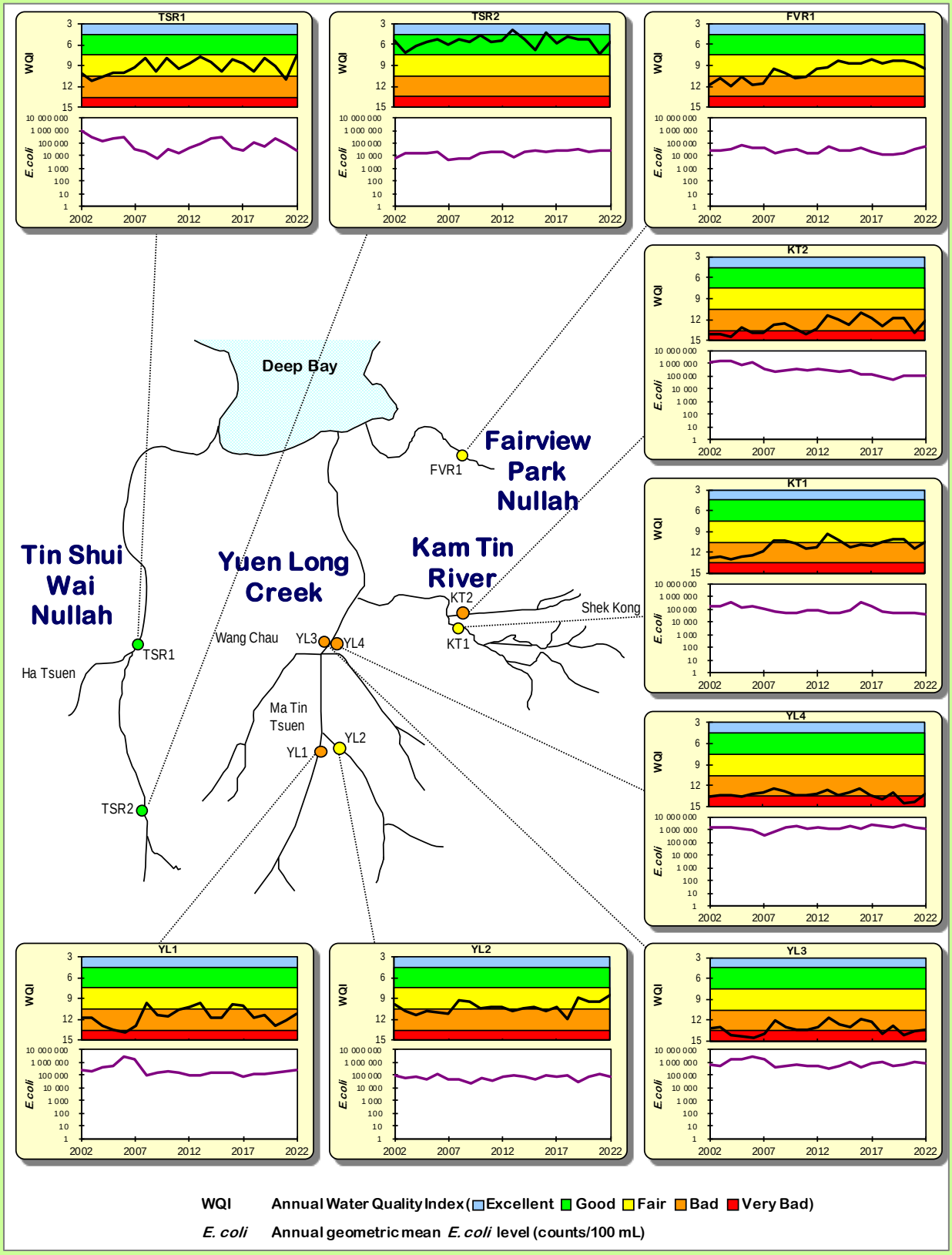
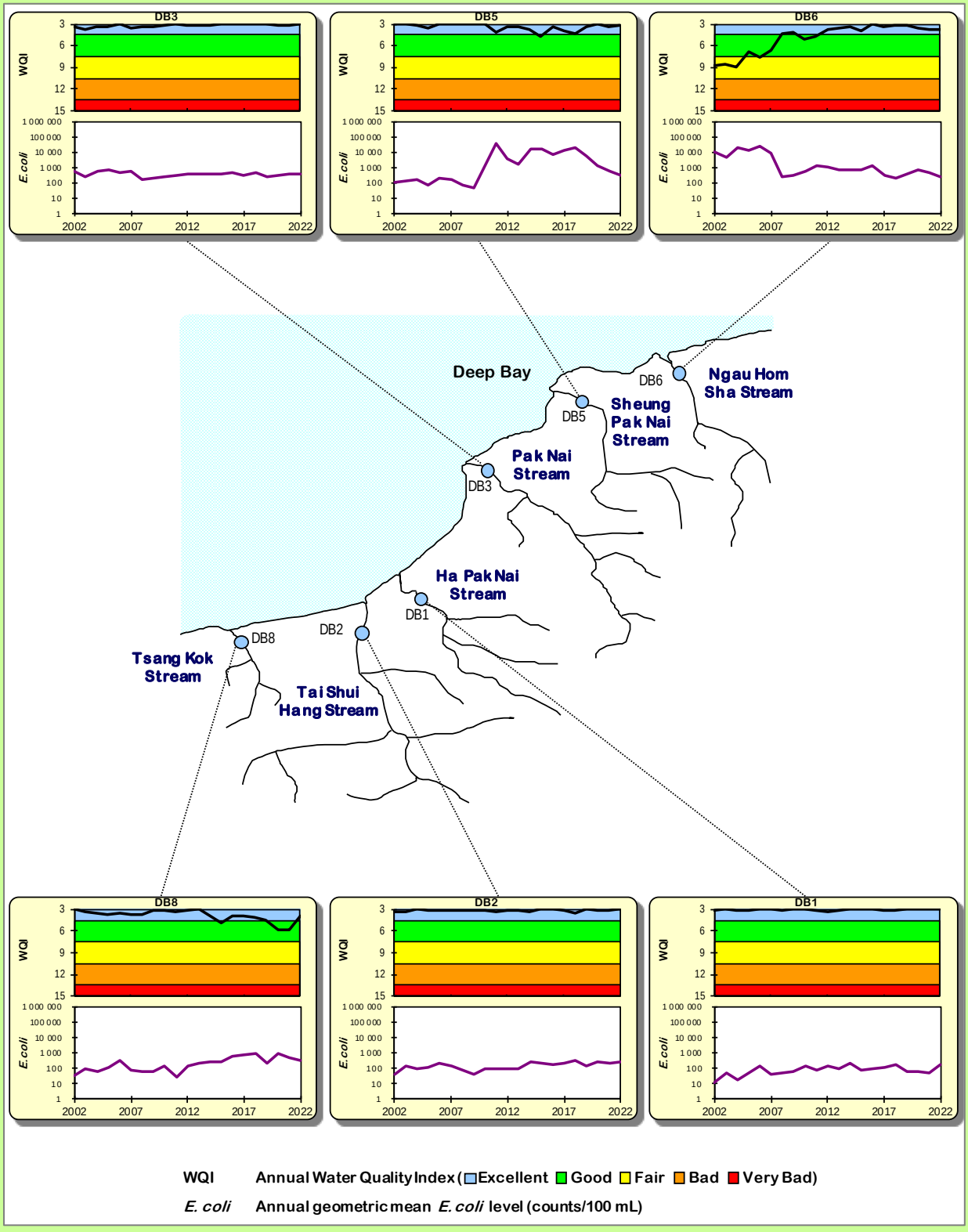


Figure 18. WQI gradings and *E. coli* levels in Ha Pak Nai Stream, Tai Shui Hang Stream, Pak Nai Stream, Sheung Pak Nai Stream, Ngau Hom Sha Stream and Tsang Kok Stream

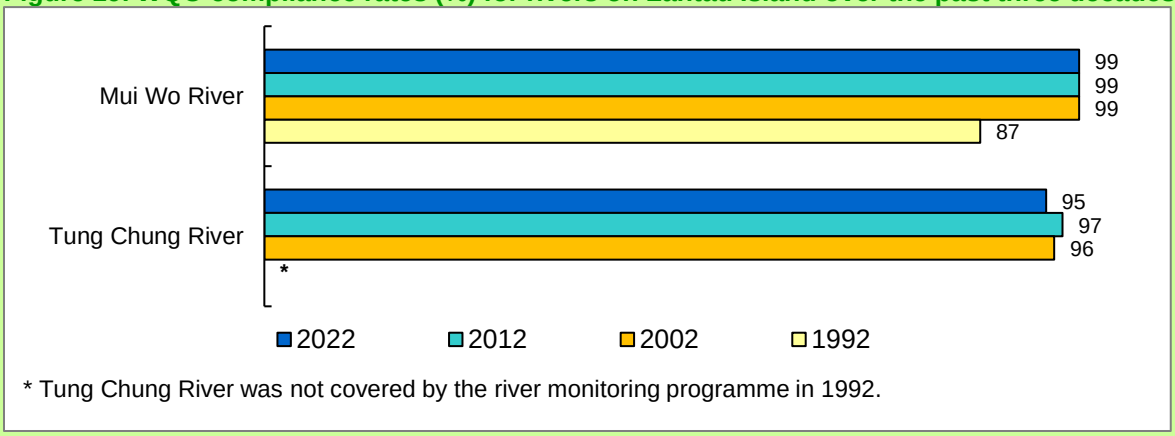


3.3 Lantau Island

Two rivers with a total of eight monitoring stations are monitored by the EPD on Lantau Island: Five stations along Mui Wo River on the southeastern side of Lantau Island (in the Southern WCZ) and three stations at Tung Chung River on the northwestern side of the island (in the North Western WCZ).

The rivers on Lantau Island generally exhibited satisfactory water quality over the past three decades. In 2022, the overall WQO compliance rates of all river monitoring stations on Lantau Island were 98%, as compared to 75% in 1992. The WQO compliance rate of Mui Wo River and Tung Chung River were 99% and 95%, respectively in 2022 (Figure 19). As for the WQI grading, while one monitoring station (TC3) at Tung Chung River achieved "Good" WQI, all other stations in these rivers maintained "Excellent" grading in 2022 (Figures 20 and 21).

Figure 19. WQO compliance rates (%) for rivers on Lantau Island over the past three decades



* Tung Chung River was not covered by the river monitoring programme in 1992.

Figure 20. WQI gradings and *E. coli* levels in Mui Wo River

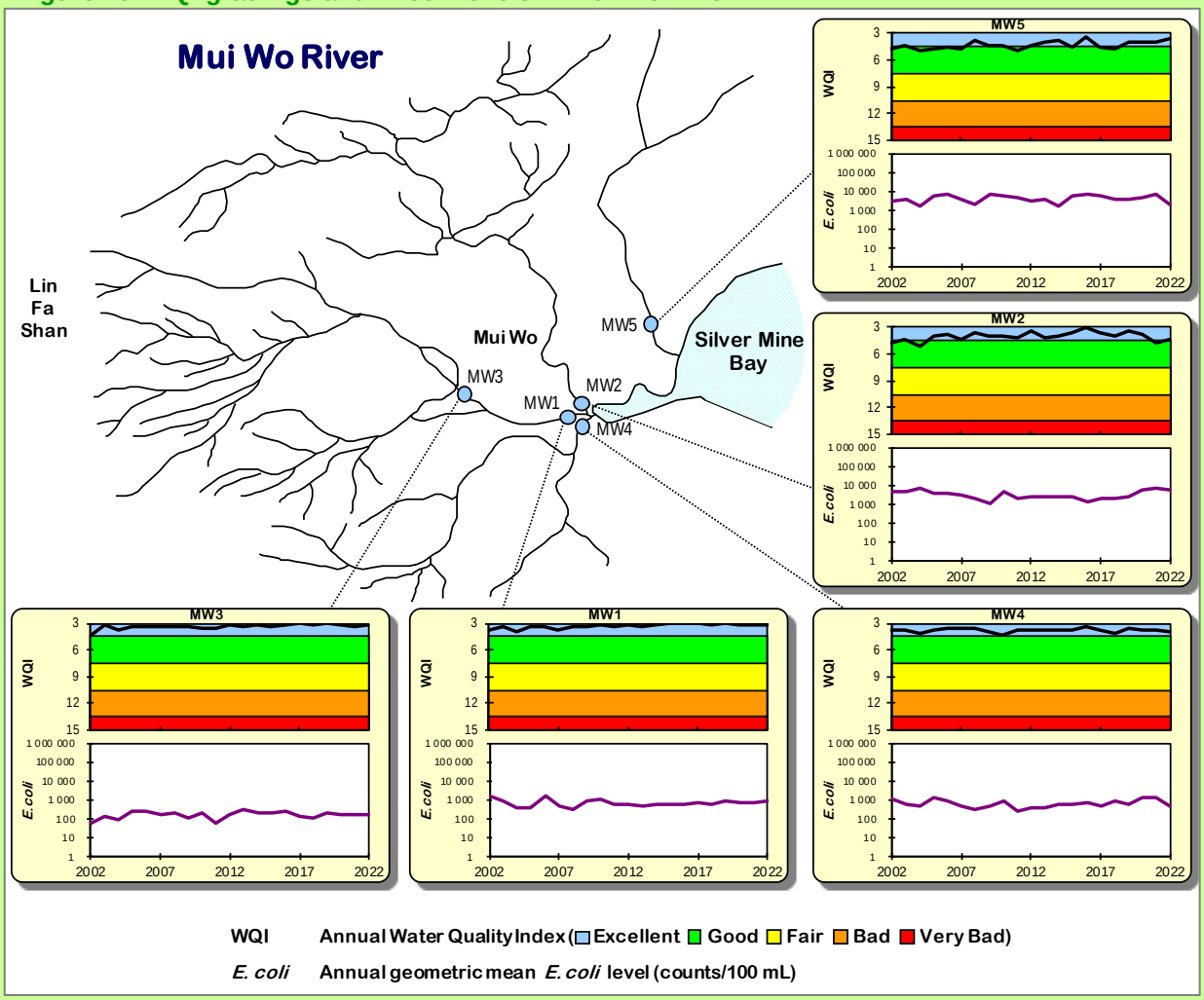
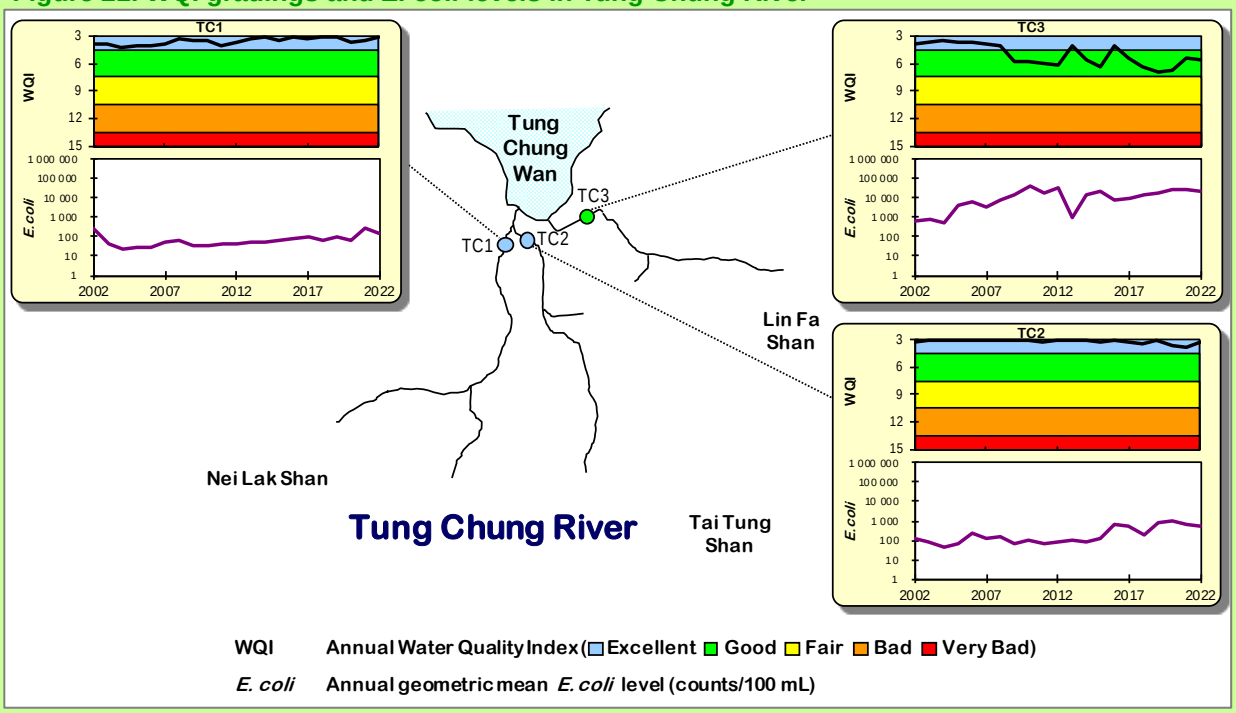


Figure 21. WQI gradings and *E. coli* levels in Tung Chung River



3.4 Southwestern New Territories and Kowloon

Five major watercourses in these areas are monitored by EPD, including Tuen Mun River (in the North Western WCZ), Pai Min Kok (Anglers') Stream located near Sham Tseng (in the Western Buffer WCZ), Sam Dip Tam Stream near Tsuen Wan, Kau Wa Keng Stream in Kwai Chung and Kai Tak River in East Kowloon (in the Victoria Harbour WCZ).

There has been significant improvement in the water quality of these urban watercourses over the past 30 years. In 2022, the overall WQO compliance rate of all monitoring stations in the Southwestern New Territories and Kowloon was 86%, as compared to 82% in 2002.

As a major river in the Southwestern New Territories, Tuen Mun River passes through Lam Tei, San Hing Tsuen and Fu Tei in its upstream section, and then the densely populated Tuen Mun town in its mid-stream before draining into the Tuen Mun Typhoon Shelter. The river showed marked water quality improvement in the last three decades, with its overall WQO compliance rate rising significantly from 40% in 1992 to 82% in 2022 (Figure 22). Five of the six monitoring stations (TN2, TN3, TN4, TN5 and TN6) in the river maintained "Good" WQI grading while one of the upstream monitoring stations (TN1) was graded as "Bad" in 2022, mainly due to discharges from unsewered rural areas (Figure 23). To effectively protect the water quality of Tuen Mun River, the government has installed a dry weather flow interceptors (DWFIs) near the Siu Hong Station of MTR Tuen Ma line since 2001 to divert the surface runoffs (TN1) from the upstream unsewered villages to foul sewers leading to the sewage treatment works for treatment.

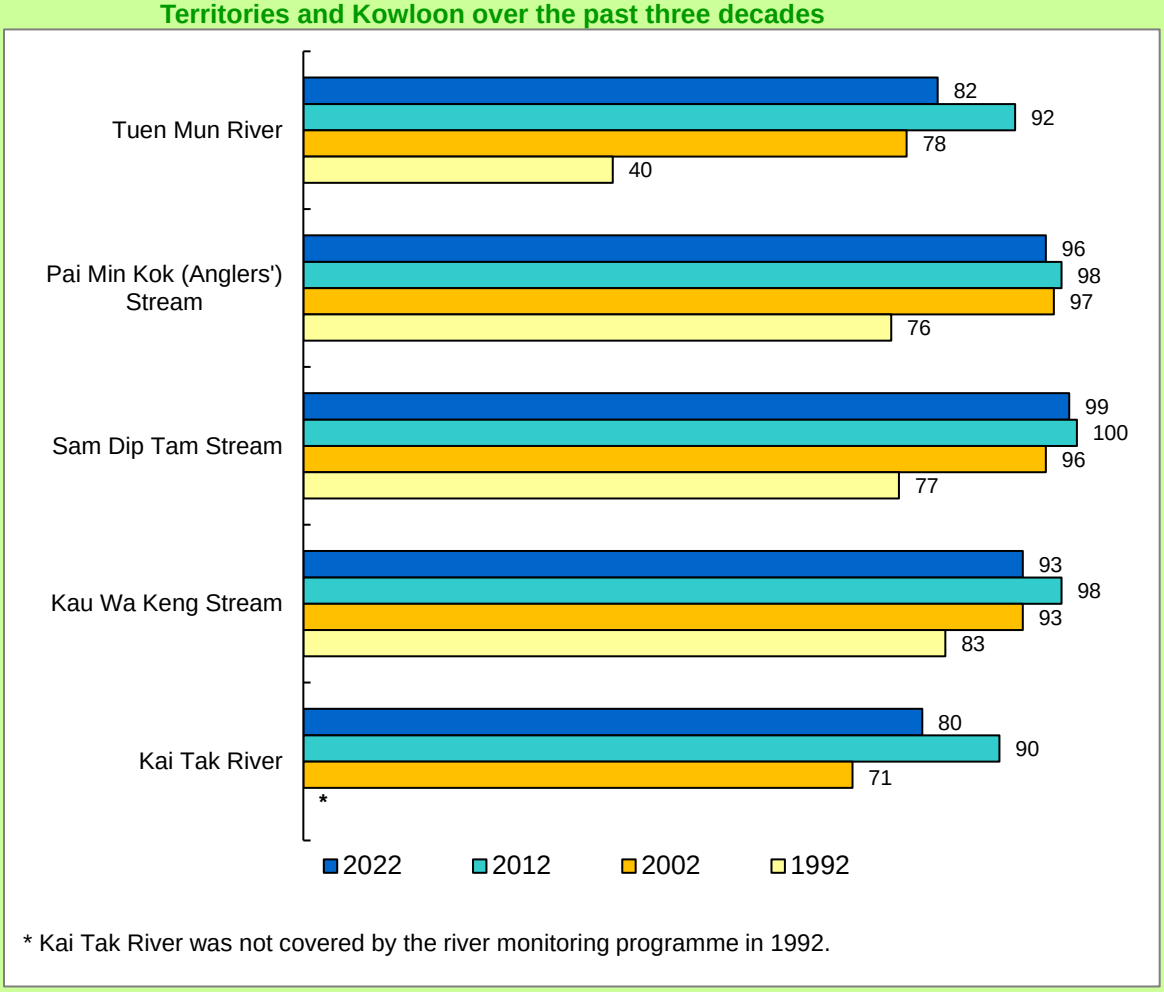
Pai Min Kok (Anglers') Stream located near Sham Tseng achieved an overall WQO compliance rate of 96% in 2022 (Figure 22). Both monitoring stations (AN1 and AN2) in the stream maintained "Excellent" WQI grading (Figure 24).

Sam Dip Tam Stream in Tsuen Wan achieved an overall WQO compliance rate of 99% in 2022 (Figure 22). All three monitoring stations in the stream maintained "Excellent" WQI grading (Figure 24).

The monitoring station at Kau Wa Keng Stream in Kwai Chung (i.e. KW3) achieved a WQO compliance rate of 93% in 2022, as compared with 83% in 1992 (Figure 22), with "Good" WQI grading (Figure 24).

Kai Tak River in East Kowloon attained a WQO compliance rate of 80% in 2022, as compared with 71% in 2002 (Figure 22). In 2022, five monitoring stations in the river maintained "Good" WQI grading while the downstream station (KN1) was graded as "Fair" (Figure 25).

Figure 22. WQO compliance rates (%) for rivers and streams in Southwestern New Territories and Kowloon over the past three decades



* Kai Tak River was not covered by the river monitoring programme in 1992.

Figure 23. WQI gradings and *E. coli* levels in Tuen Mun River

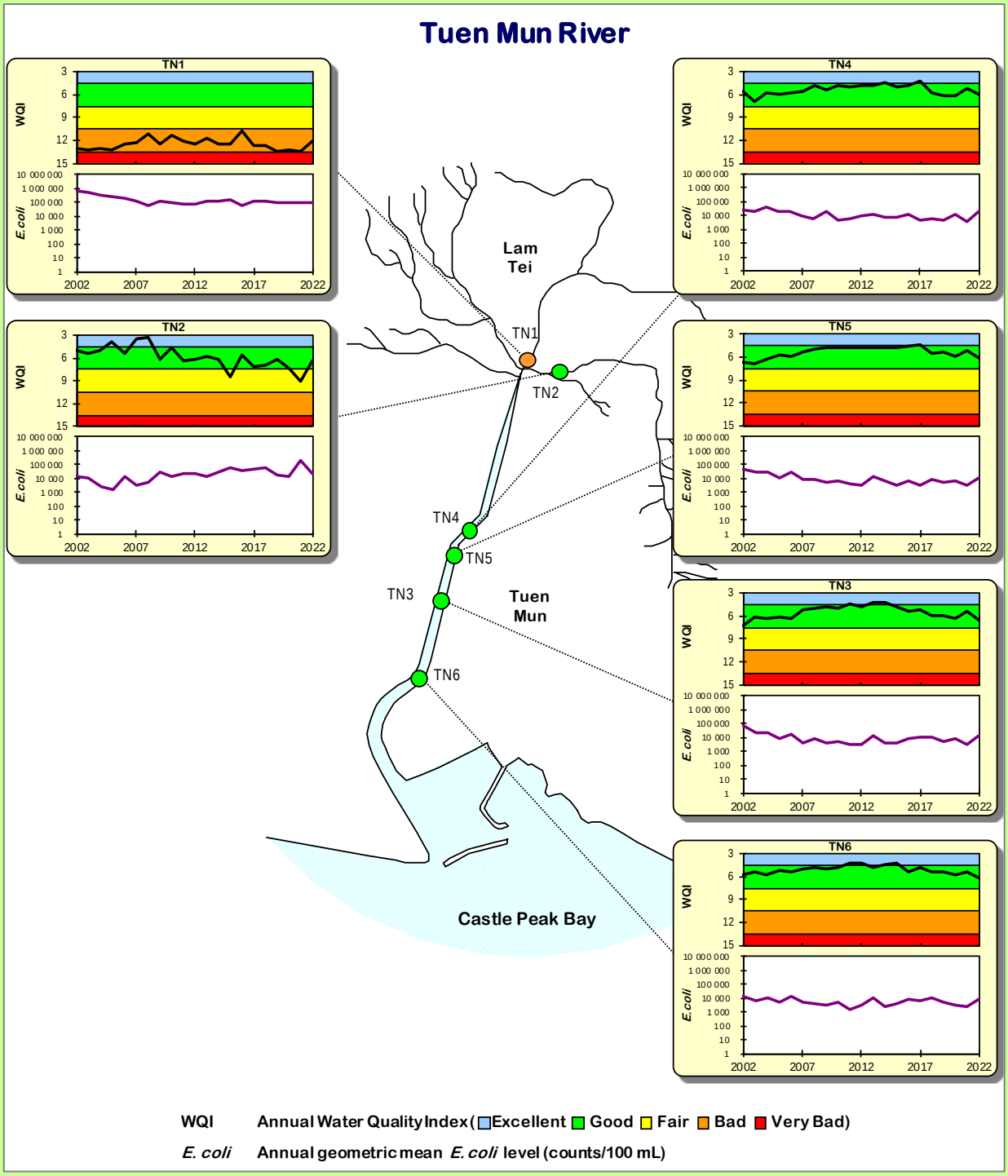


Figure 24. WQI gradings and *E. coli* levels in Pai Min Kok (Anglers') Stream, Sam Dip Tam Stream and Kau Wa Keng Stream

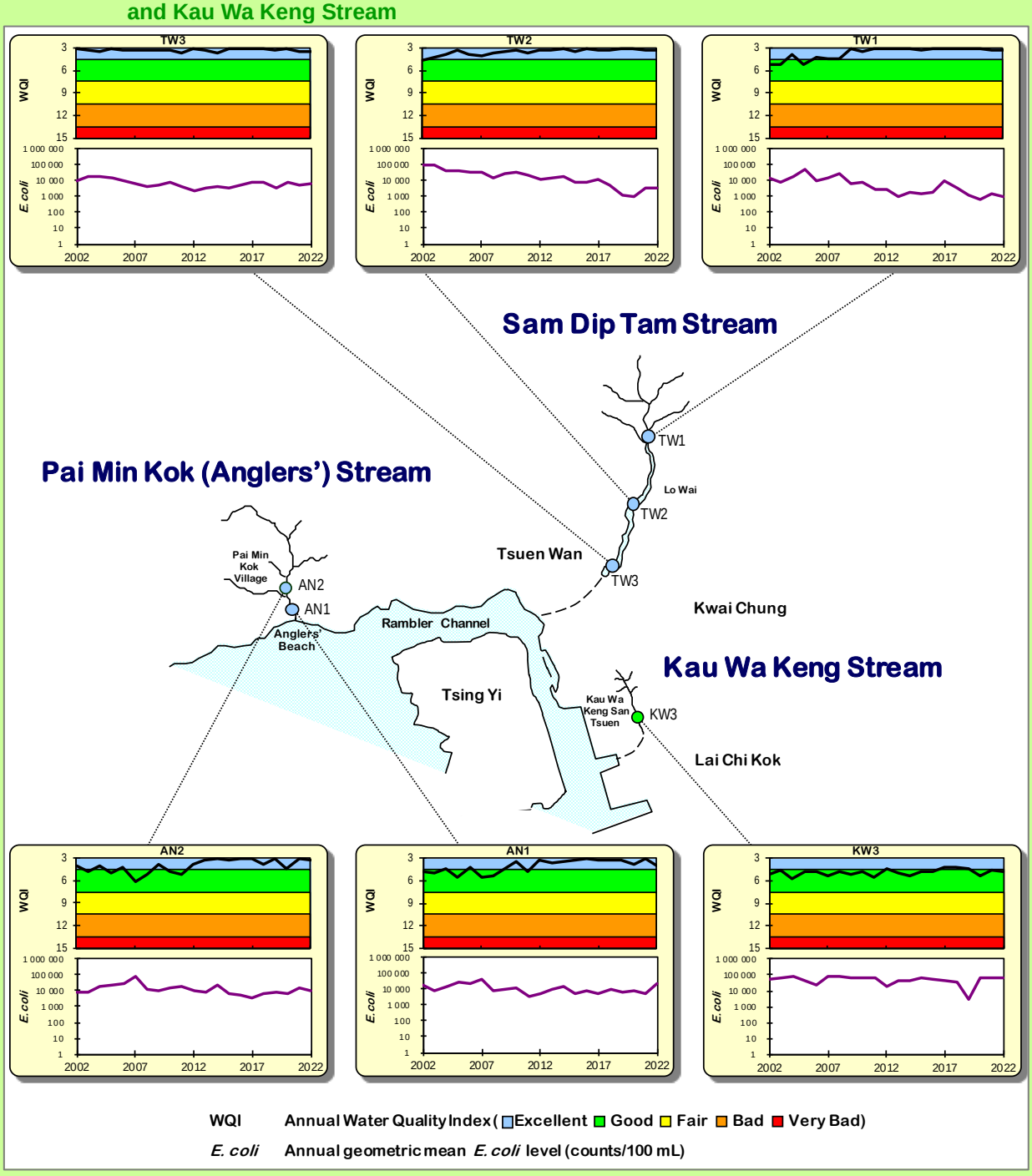
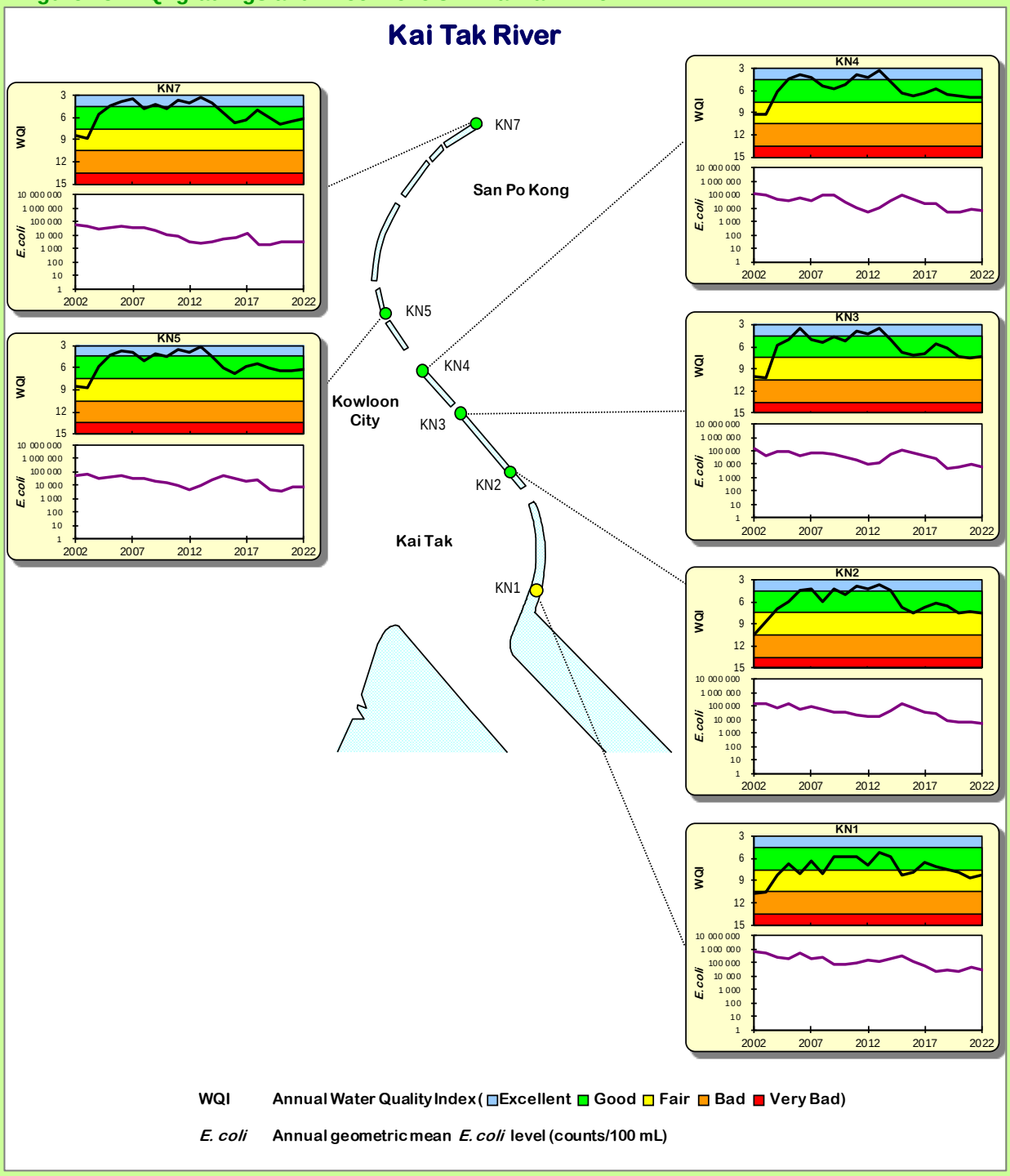


Figure 25. WQI gradings and *E. coli* levels in Kai Tak River



Appendices

Summary of river water quality monitoring stations and sampling frequency

Area	Watercourse	Monitoring Station	(Number)	Sampling frequency[1]
Eastern New Territories				
Sha Tin	Shing Mun River			
	Shing Mun Main Channel	TR19I	(1)	monthly
	Siu Lek Yuen Nullah	TR23A, TR23L	(2)	monthly
	Fo Tan Nullah	TR17, TR17L	(2)	monthly
	Kwun Yam Shan Stream	KY1	(1)	monthly
	Tai Wai Nullah	TR19, TR19A, TR19C	(3)	monthly
	Tin Sum Nullah	TR20B	(1)	monthly
Tai Po Town Centre	Lam Tsuen River	TR12, TR12B, TR12C, TR12D, TR12E, TR12F, TR12G, TR12H, TR12I	(9)	monthly
	Tai Po River	TR13	(1)	monthly
Tai Po Rural Area	Tai Po Kau Stream	TR14	(1)	monthly
	Shan Liu Stream	TR4	(1)	monthly
	Tung Tze Stream	TR6	(1)	monthly
Sai Kung	Ho Chung River	PR1, PR2	(2)	monthly
	Sha Kok Mei Stream	PR5, PR6	(2)	monthly
	Tai Chung Hau Stream	PR7, PR8	(2)	monthly
Tseung Kwan O	Tseng Lan Shue Stream	JR3, JR6, JR11	(3)	monthly
Northwestern New Territories				
North District	River Indus (Ng Tung River)	IN1, IN2, IN3	(3)	monthly
	River Beas (Sheung Yue River)	RB1, RB2, RB3	(3)	monthly
	River Ganges (Ping Yuen River)	GR1, GR2, GR3	(3)	monthly
Yuen Long	Yuen Long Creek	YL1, YL2, YL3, YL4	(4)	monthly
	Kam Tin River	KT1, KT2	(2)	monthly
	Tin Shui Wai Nullah	TSR1, TSR2	(2)	monthly
	Fairview Park Nullah	FVR1	(1)	monthly
Lau Fau Shan	Ha Pak Nai Stream	DB1	(1)	monthly
	Tai Shui Hang Stream	DB2	(1)	monthly
	Pak Nai Stream	DB3	(1)	monthly
	Sheung Pak Nai Stream	DB5	(1)	monthly
	Ngau Hom Sha Stream	DB6	(1)	monthly
	Tsang Kok Stream	DB8	(1)	monthly
Lantau Island				
Mui Wo	Mui Wo River	MW1, MW2, MW3, MW4, MW5	(5)	monthly
Tung Chung	Tung Chung River	TC1, TC2, TC3	(3)	monthly
Southwestern New Territories and Kowloon				
Tuen Mun	Tuen Mun River	TN1, TN2, TN3, TN4, TN5, TN6	(6)	monthly
Tsuen Wan and Kwai Chung	Pai Min Kok (Anglers') Stream	AN1, AN2	(2)	monthly
	Sam Dip Tam Stream	TW1, TW2, TW3	(3)	monthly
	Kau Wa Keng Stream	KW3	(1)	monthly
Kowloon	Kai Tak River	KN1, KN2, KN3, KN4, KN5, KN7	(6)	monthly
Total	**30**	**82**		**-**

[1] Affected by the special work arrangement under the COVID-19 pandemic, river water quality monitoring frequency was adjusted in March 2022 and sampling at representative monitoring stations in major rivers were maintained.

River water quality parameters and analytical methods (part 1 of 2)

Water Quality Parameter	Reporting Limit and Unit	Analytical Method[1] / Analyst
Physical Chemical Properties		
Water Temperature	0.1 °C	Multi-parameter water quality data logger, model YSI ProDss / On-site measurement / EPD
Dissolved Oxygen	0.1 mg/L, 1% saturation	
pH	0.1	
Conductivity	1 μS/cm	
Salinity	0.01 psu	
Turbidity	0.1 NTU	
Flow	0.001 m^3/s	Global Water Flow Probe, model FP211 / Electromagnetic flow meter, model Hach FH950 / On-site measurement / EPD
Solid Contents		
Suspended Solids	0.5 mg/L	In-house method GL-PH-23, based on APHA 22ed 2540 D & E / Government Laboratory
Total Solids	0.5 mg/L	In-house method GL-PH-19, based on APHA 20ed 2540 B & E / Government Laboratory
Total Volatile Solids	0.5 mg/L	In-house method GL-PH-19, based on APHA 20ed 2540 B & E / Government Laboratory
Aggregate Organics		
5-Day Biochemical Oxygen Demand (BOD_5)	0.1 mg/L	In-house method based on APHA 18ed 5210 B / EPD
Chemical Oxygen Demand (COD)	2 mg/L	In-house method GL-OR-38, based on ASTM D1252-00, Method A or in-house method GL-OR-39, based on ASTM D1252-00, Method B / Government Laboratory
Total Organic Carbon (TOC)	1 mg/L	In-house method GL-OR-32, based on APHA 21ed 5310 B / Government Laboratory
Faecal Bacteria		
Escherichia coli (*E. coli*)	1 counts/100 mL	In-house method[2], membrane filtration with CHROMagar Liquid ECC medium / EPD
Faecal Coliforms	1 counts/100 mL	
Nutrients		
Ammonia-Nitrogen	0.005 mg/L	In-house method GL-IN-15, based on ASTM Standards, D 3590-11 Test Method B / Government Laboratory
Nitrite-Nitrogen	0.002 mg/L	In-house method GL-IN-18, based on APHA 22ed 4500-NO_2^- B / Government Laboratory
Nitrate-Nitrogen	0.002 mg/L	In-house method GL-IN-18, based on APHA 22ed 4500-NO_3^- I / Government Laboratory
Total Kjeldahl Nitrogen	0.05 mg/L	In-house methods GL-IN-14 and GL-IN-15, based on ASTM D3590-11 Test Method B / Government Laboratory
Orthophosphate-Phosphorus	0.002 mg/L	In-house method GL-IN-16, based on APHA 22ed 4500-P G / Government Laboratory
Total Phosphorus	0.02 mg/L	In-house methods GL-IN-14 and GL-IN-16, based on APHA 22ed 4500-P G, Test method B / Government Laboratory
Silica (as SiO_2)	0.05 mg/L	In-house method GL-IN-17, based on APHA 22ed 4500-SiO_2 F / Government Laboratory

Reference notes:

1. Mention of brand names of commercial products does not constitute or imply endorsement or recommendation by the Environmental Protection Department.
2. i) Ho, B.S.W. and Tam, T.Y. (1997). Enumeration of *E. coli* in environmental waters and wastewater using a chromogenic medium. *Wat. Sci. Tech.*, **35**, 409-413.
   ii) DoE and DHSS (1983). "The bacteriological examination of drinking water supplies 1982. Report on Public Health and Medical Subjects No. 71. Methods for the Examination of Waters and Associated Materials". Department of Environment, Department of Health and Social Security, Public Health Laboratory Service, H.M.S.O. London.

River water quality parameters and analytical methods (part 2 of 2)

Water Quality Parameter	Reporting Limit and Unit	Analytical Method[1] / Analyst
Metals		
Aluminium	50 μg/L	In-house methods GL-TE-63 and GL-TE-89, based on USEPA method 6020B (ICP-MS) / Government Laboratory
Antimony	1 μg/L	
Arsenic	1 μg/L	
Barium	1 μg/L	
Beryllium	1 μg/L	
Boron	50 μg/L	
Cadmium	0.1 μg/L	
Chromium	1 μg/L	
Copper	1 μg/L	
Iron	50 μg/L	
Lead	1 μg/L	
Manganese	10 μg/L	
Mercury	1 μg/L	
Molybdenum	2 μg/L	
Nickel	1 μg/L	
Silver	1 μg/L	
Thallium	1 μg/L	
Vanadium	2 μg/L	
Zinc	10 μg/L	
Pollutants from Industrial and Commercial Sources		
Cyanide	0.01 mg/L	In-house method GL-IN-42, based on ASTM D 4374-06 / Government Laboratory
Chloride	10 mg/L	In-house method GL-IN-43, based on APHA 20ed 4500-Cl^- E & G / Government Laboratory
Fluoride	0.2 mg/L	In-house method GL-IN-47, based on APHA 20ed 4500-F^- C & G / Government Laboratory
Anionic Surfactants (as Manoxol OT)	0.05 mg/L	In-house method GL-OR-30, based on BS 6068, Section 2.23 (1986), BS EN 903:1994, BS 6068: Section 2.23:1994 (Colorimetric) & In-house method GL-OR-65, based on Abbott, D.C. “Analyst”, Vol.87, p.286(1962) & S. Motomizu et al., “Analyst” Vol.113, p.747(1988) (FIA) / Government Laboratory
Oil and Grease	0.5 mg/L	In-house method GL-OR-26, based on APHA 20ed 5520 C / Government Laboratory
Sulphide Contents		
Free Hydrogen Sulphide	0.01 mg/L	In-house method GL-IN-46, based on APHA 20ed 4500S^{2-} D / Government Laboratory
Sulphide	0.02 mg/L	
Plant Pigments		
Chlorophyll-*a*	0.2 mg/m^3	In house method GL-OR-34, based on APHA 20ed 10200H 2 / Government Laboratory
Pheo-pigment	0.2 mg/m^3	

Key WQOs for river monitoring stations in Eastern New Territories

Watercourse	Monitoring station	Key Water Quality Objectives (WQOs)				
		pH range	Maximum 5-Day Biochemical Oxygen Demand (mg/L)	Maximum Chemical Oxygen Demand (mg/L)	Maximum Annual Median Suspended Solids* (mg/L)	Minimum Dissolved Oxygen (mg/L)
Tolo Harbour and Channel Water Control Zone						
Shing Mun River	KY1	6.5 - 8.5	3	15	20	4
	TR17	6.5 - 8.5	5	30	20	4
	TR17L	6.5 - 8.5	5	30	20	4
	TR19	6.5 - 8.5	5	30	20	4
	TR19A	6.5 - 8.5	5	30	20	4
	TR19C	6.5 - 8.5	5	30	20	4
	TR19I	6.0 - 9.0	5	30	25	4
	TR20B	6.5 - 8.5	5	30	20	4
	TR23A	6.5 - 8.5	3	15	20	4
	TR23L	6.5 - 8.5	3	15	20	4
Lam Tsuen River	TR12	6.5 - 8.5	3	15	20	4
	TR12B	6.5 - 8.5	3	15	20	4
	TR12C	6.5 - 8.5	3	15	20	4
	TR12D	6.5 - 8.5	3	15	20	4
	TR12E	6.5 - 8.5	3	15	20	4
	TR12F	6.5 - 8.5	3	15	20	4
	TR12G	6.5 - 8.5	3	15	20	4
	TR12H	6.5 - 8.5	3	15	20	4
	TR12I	6.0 - 9.0	5	30	25	4
Tai Po River	TR13	6.5 - 8.5	5	30	20	4
Tai Po Kau Stream	TR14	6.0 - 9.0	5	30	25	4
Shan Liu Stream	TR4	6.0 - 9.0	5	30	25	4
Tung Tze Stream	TR6	6.0 - 9.0	5	30	25	4
Port Shelter Water Control Zone						
Ho Chung River	PR1	6.5 - 8.5	5	30	25	4
	PR2	6.5 - 8.5	5	30	25	4
Sha Kok Mei Stream	PR5	6.0 - 9.0	5	30	25	4
	PR6	6.0 - 9.0	5	30	25	4
Tai Chung Hau Stream	PR7	6.0 - 9.0	5	30	25	4
	PR8	6.0 - 9.0	5	30	25	4
Junk Bay Water Control Zone						
Tseng Lan Shue Stream	JR3	6.0 - 9.0	5	30	25	4
	JR6	6.0 - 9.0	5	30	25	4
	JR11	6.0 - 9.0	5	30	25	4

* The WQO compliance for suspended solids is based on annual median value, while WQO compliance for other parameters is based on individual measurements.

Key WQOs for river monitoring stations in Northwestern New Territories

Watercourse	Monitoring station	Key Water Quality Objectives (WQOs)				
		pH range	Maximum 5-Day Biochemical Oxgyen Demand (mg/L)	Maximum Chemical Oxygen Demand (mg/L)	Maximum Annual Median Suspended Solids* (mg/L)	Minimum Dissolved Oxygen (mg/L)
Deep Bay Water Control Zone						
River Indus	IN1	6.5 - 8.5	3	15	20	4
	IN2	6.5 - 8.5	3	15	20	4
	IN3	6.5 - 8.5	3	15	20	4
River Beas	RB1	6.5 - 8.5	3	15	20	4
	RB2	6.5 - 8.5	3	15	20	4
	RB3	6.5 - 8.5	3	15	20	4
River Ganges	GR1	6.5 - 8.5	3	15	20	4
	GR2	6.5 - 8.5	3	15	20	4
	GR3	6.5 - 8.5	3	15	20	4
Yuen Long Creek	YL1	6.5 - 8.5	3	15	20	4
	YL2	6.5 - 8.5	3	15	20	4
	YL3	6.5 - 8.5	5	30	20	4
	YL4	6.5 - 8.5	5	30	20	4
Kam Tin River	KT1	6.5 - 8.5	3	15	20	4
	KT2	6.5 - 8.5	3	15	20	4
Tin Shui Wai Nullah	TSR1	6.0 - 9.0	5	30	20	4
	TSR2	6.0 - 9.0	5	30	20	4
Fairview Park Nullah	FVR1	6.0 - 9.0	5	30	20	4
Ha Pak Nai Stream	DB1	6.0 - 9.0	5	30	20	4
Tai Shui Hang Stream	DB2	6.0 - 9.0	5	30	20	4
Pak Nai Stream	DB3	6.0 - 9.0	5	30	20	4
Sheung Pak Nai Stream	DB5	6.0 - 9.0	5	30	20	4
Ngau Hom Sha Stream	DB6	6.0 - 9.0	5	30	20	4
Tsang Kok Stream	DB8	6.0 - 9.0	5	30	20	4

* The WQO compliance for suspended solids is based on annual median value, while WQO compliance for other parameters is based on individual measurements.

Key WQOs for river monitoring stations on Lantau Island

Watercourse	Monitoring station	Key Water Quality Objectives (WQOs)				
		pH range	Maximum 5-Day Biochemical Oxgyen Demand (mg/L)	Maximum Chemical Oxygen Demand (mg/L)	Maximum Annual Median Suspended Solids* (mg/L)	Minimum Dissolved Oxygen (mg/L)
Southern Water Control Zone						
Mui Wo River	MW1	6.5 - 8.5	5	30	20	4
	MW2	6.5 - 8.5	5	30	20	4
	MW3	6.5 - 8.5	5	30	20	4
	MW4	6.5 - 8.5	5	30	20	4
	MW5	6.0 - 9.0	5	30	25	4
North Western Water Control Zone						
Tung Chung River	TC1	6.0 - 9.0	5	30	25	4
	TC2	6.0 - 9.0	5	30	25	4
	TC3	6.0 - 9.0	5	30	25	4

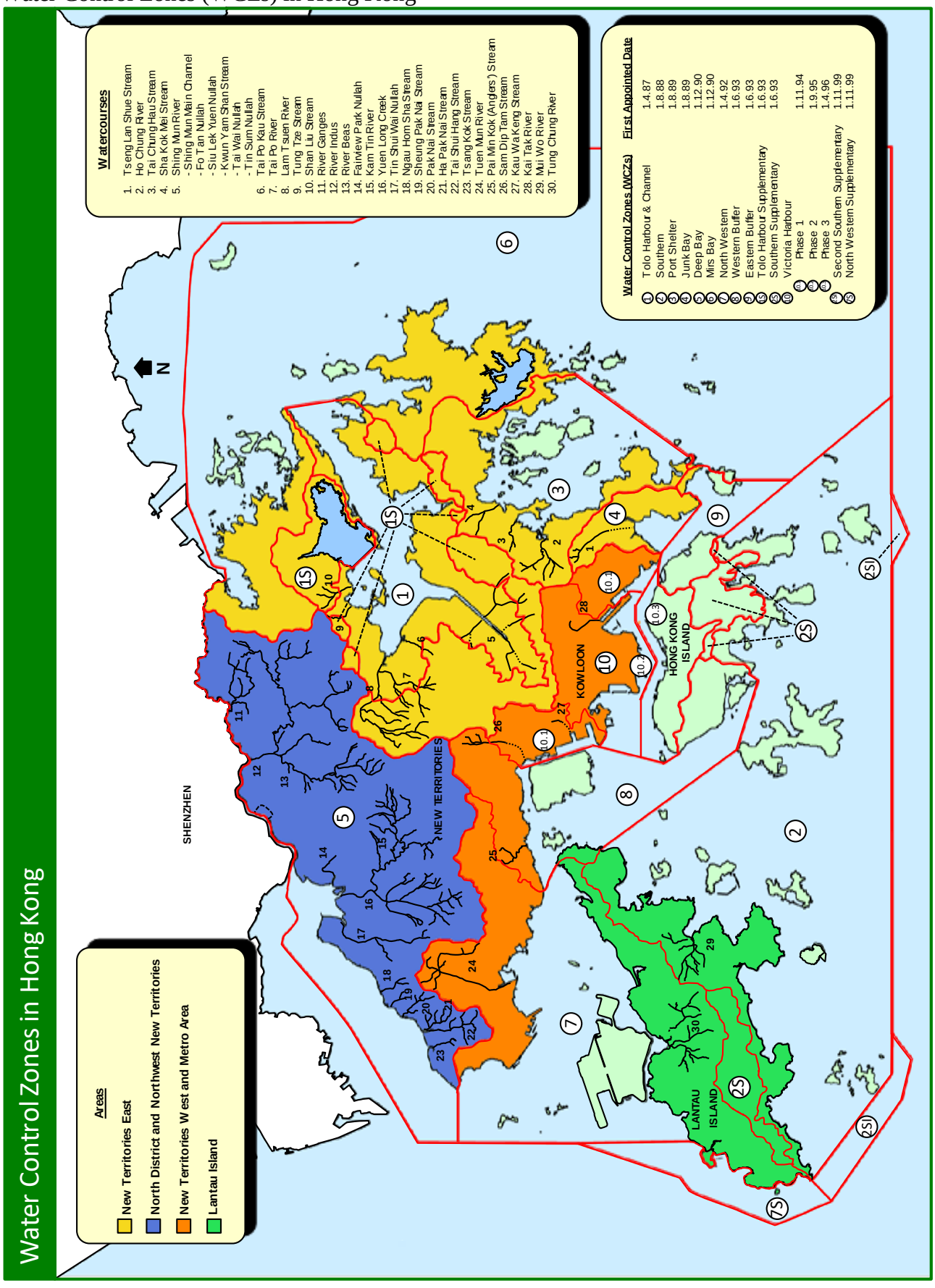
* The WQO compliance for suspended solids is based on annual median value, while WQO compliance for other parameters is based on individual measurements.

Key WQOs for river monitoring stations in Southwestern New Territories and Kowloon

Watercourse	Monitoring station	Key Water Quality Objectives (WQOs)				
		pH range	Maximum 5-Day Biochemical Oxgyen Demand (mg/L)	Maximum Chemical Oxygen Demand (mg/L)	Maximum Annual Median Suspended Solids (mg/L)	Minimum Dissolved Oxygen (mg/L)
North Western Water Control Zone						
Tuen Mun River	TN1	6.0 - 9.0	5	30	25	4
	TN2	6.5 - 8.5	3	15	20	4
	TN3	6.0 - 9.0	5	30	25	4
	TN4	6.0 - 9.0	5	30	25	4
	TN5	6.0 - 9.0	5	30	25	4
	TN6	6.0 - 9.0	5	30	25	4
Western Buffer Water Control Zone						
Pai Min Kok (Anglers') Stream	AN1	6.0 - 9.0	5	30	25	4
	AN2	6.0 - 9.0	5	30	25	4
Victoria Harbour Water Control Zone						
Sam Dip Tam Stream	TW1	6.0 - 9.0	5	30	25	4
	TW2	6.0 - 9.0	5	30	25	4
	TW3	6.0 - 9.0	5	30	25	4
Kau Wa Keng Stream	KW3	6.0 - 9.0	5	30	25	4
Kai Tak River	KN1	6.0 - 9.0	5	30	25	4
	KN2	6.0 - 9.0	5	30	25	4
	KN3	6.0 - 9.0	5	30	25	4
	KN4	6.0 - 9.0	5	30	25	4
	KN5	6.0 - 9.0	5	30	25	4
	KN7	6.0 - 9.0	5	30	25	4

* The WQO compliance for suspended solids is based on annual median value, while WQO compliance for other parameters is based on individual measurements.

Water Control Zones (WCZs) in Hong Kong



Location of river water monitoring stations

Water Control Zone	Watercourse	Station	Location	
			Latitude	Longitude
Tolo Harbour and Channel	Shing Mun River	KY1	22° 21' 39.8" N	114° 12' 32.0" E
		TR17	22° 23' 47.5" N	114° 11' 41.4" E
		TR17L	22° 23' 31.5" N	114° 12' 00.0" E
		TR19	22° 22' 30.3" N	114° 10' 50.0" E
		TR19A	22° 22' 38.0" N	114° 10' 18.8" E
		TR19C	22° 22' 39.4" N	114° 10' 45.3" E
		TR19I	22° 23' 15.7" N	114° 11' 57.3" E
		TR20B	22° 21' 42.8" N	114° 10' 10.4" E
		TR23A	22° 23' 02.1" N	114° 12' 36.9" E
		TR23L	22° 22' 50.1" N	114° 12' 39.7" E
	Lam Tsuen River	TR12	22° 27' 01.9" N	114° 09' 27.9" E
		TR12B	22° 27' 41.0" N	114° 08' 49.6" E
		TR12C	22° 27' 33.8" N	114° 08' 45.6" E
		TR12D	22° 26' 42.8" N	114° 07' 50.3" E
		TR12E	22° 26' 58.3" N	114° 09' 20.7" E
		TR12F	22° 26' 58.7" N	114° 08' 35.7" E
		TR12G	22° 26' 46.0" N	114° 08' 18.0" E
		TR12H	22° 26' 45.0" N	114° 07' 43.4" E
		TR12I	22° 27' 02.3" N	114° 10' 19.4" E
	Tai Po River	TR13	22° 26' 24.7" N	114° 09' 58.8" E
	Tai Po Kau Stream	TR14	22° 26' 10.7" N	114° 11' 15.5" E
	Shan Liu Stream	TR4	22° 28' 17.7" N	114° 13' 18.4" E
	Tung Tze Stream	TR6	22° 27' 55.1" N	114° 12' 30.0" E
Port Shelter	Ho Chung River	PR1	22° 21' 16.8" N	114° 15' 02.0" E
		PR2	22° 21' 17.8" N	114° 14' 49.3" E
	Sha Kok Mei Stream	PR5	22° 23' 04.1" N	114° 16' 16.9" E
		PR6	22° 23' 10.4" N	114° 16' 10.8" E
	Tai Chung Hau Stream	PR7	22° 22' 11.4" N	114° 15' 32.9" E
		PR8	22° 22' 24.8" N	114° 15' 35.8" E
Junk Bay	Tseng Lan Shue Stream	JR3	22° 20' 00.3" N	114° 14' 23.7" E
		JR6	22° 20' 09.6" N	114° 14' 36.9" E
		JR11	22° 19' 44.8" N	114° 15' 00.1" E
Deep Bay	River Indus	IN1	22° 31' 03.6" N	114° 06' 54.3" E
		IN2	22° 30' 27.3" N	114° 08' 07.1" E
		IN3	22° 31' 11.3" N	114° 10' 33.5" E
	River Beas	RB1	22° 29' 07.7" N	114° 06' 10.3" E
		RB2	22° 30' 12.2" N	114° 06' 19.2" E
		RB3	22° 30' 38.3" N	114° 06' 40.1" E
	River Ganges	GR1	22° 32' 20.4" N	114° 08' 42.8" E
		GR2	22° 31' 41.0" N	114° 09' 16.0" E
		GR3	22° 32' 13.0" N	114° 10' 05.7" E
	Yuen Long Creek	YL1	22° 26' 19.6" N	114° 01' 33.0" E
		YL2	22° 26' 20.1" N	114° 01' 34.3" E
		YL3	22° 26' 55.3" N	114° 01' 33.1" E
		YL4	22° 26' 55.3" N	114° 01' 33.6" E
	Kam Tin River	KT1	22° 26' 24.3" N	114° 03' 29.0" E
		KT2	22° 26' 33.2" N	114° 03' 39.0" E
	Tin Shui Wai Nullah	TSR1	22° 26' 47.2" N	113° 59' 50.4" E
		TSR2	22° 25' 46.0" N	113° 59' 43.6" E
	Fairview Park Nullah	FVR1	22° 28' 57.4" N	114° 02' 44.8" E
	Ha Pak Nai Stream	DB1	22° 25' 22.2" N	113° 56' 39.7" E
	Tai Shui Hang Stream	DB2	22° 25' 11.1" N	113° 56' 19.7" E
	Pak Nai Stream	DB3	22° 26' 15.1" N	113° 56' 57.9" E
	Sheung Pak Nai Stream	DB5	22° 26' 46.7" N	113° 57' 28.1" E
	Ngau Hom Sha Stream	DB6	22° 27' 02.2" N	113° 57' 51.4" E
	Tsang Kok Stream	DB8	22° 25' 07.5" N	113° 55' 38.1" E
Southern	Mui Wo River	MW1	22° 15' 58.1" N	113° 59' 37.1" E
		MW2	22° 15' 58.5" N	113° 59' 38.9" E
		MW3	22° 15' 58.6" N	113° 59' 25.1" E
		MW4	22° 15' 54.3" N	113° 59' 37.8" E
		MW5	22° 16' 10.8" N	113° 59' 49.6" E
North Western	Tung Chung River	TC1	22° 16' 37.8" N	113° 55' 47.7" E
		TC2	22° 16' 38.2" N	113° 55' 49.3" E
		TC3	22° 16' 45.3" N	113° 56' 19.1" E
	Tuen Mun River	TN1	22° 24' 50.9" N	113° 58' 47.5" E
		TN2	22° 24' 52.7" N	113° 59' 03.6" E
		TN3	22° 23' 39.7" N	113° 58' 21.0" E
		TN4	22° 23' 59.2" N	113° 58' 29.1" E
		TN5	22° 23' 49.4" N	113° 58' 23.8" E
		TN6	22° 23' 16.0" N	113° 58' 15.8" E
Western Buffer	Pai Min Kok (Anglers') Stream	AN1	22° 21' 53.5" N	114° 03' 17.6" E
		AN2	22° 21' 56.2" N	114° 03' 17.5" E
Victoria Harbour	Sam Dip Tam Stream	TW1	22° 23' 01.7" N	114° 07' 26.4" E
		TW2	22° 22' 45.6" N	114° 07' 27.3" E
		TW3	22° 22' 36.1" N	114° 07' 24.0" E
	Kau Wa Keng Stream	KW3	22° 20' 38.2" N	114° 08' 08.5" E
	Kai Tak River	KN1	22° 19' 19.1" N	114° 12' 05.2" E
		KN2	22° 19' 35.2" N	114° 12' 04.2" E
		KN3	22° 19' 43.9" N	114° 11' 55.6" E
		KN4	22° 19' 51.3" N	114° 11' 47.6" E
		KN5	22° 20' 00.2" N	114° 11' 39.8" E
		KN7	22° 20' 21.8" N	114° 11' 51.1" E

Notes: All locations are based on WGS84 datum

Summary of water quality monitoring data for Shing Mun River (Main Channel and Siu Lek Yuen Nullah) in 2022

Parameter	Unit	Shing Mun Main Channel	Siu Lek Yuen Nullah	
		TR19I	TR23L	TR23A
Dissolved Oxygen	mg/L	7.7 (6.7 - 9.1)	8.4 (7.5 - 9.7)	7.6 (5.2 - 8.3)
pH		8.2 (7.5 - 8.4)	8.6 (8.3 - 9.2)	7.8 (7.7 - 8.1)
Suspended Solids	mg/L	4.8 (1.6 - 12.0)	1.4 (<0.5 - 3.8)	4.3 (0.9 - 8.8)
5-Day Biochemical Oxygen Demand	mg/L	3.9 (1.9 - 5.1)	0.5 (0.3 - 13.0)	1.8 (0.9 - 2.9)
Chemical Oxygen Demand	mg/L	14 (7 - 18)	4 (<2 - 6)	9 (5 - 12)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
E. coli	counts/ 100 mL	240 (10 - 18 000)	120 (20 - 480)	1 600 (710 - 4 200)
Faecal Coliforms	counts/ 100 mL	2 300 (100 - 150 000)	2 100 (640 - 6 200)	11 000 (2 800 - 39 000)
Ammonia-Nitrogen	mg/L	0.071 (0.034 - 0.290)	0.015 (<0.005 - 0.180)	0.110 (0.022 - 0.230)
Nitrate-Nitrogen	mg/L	0.140 (0.009 - 0.680)	0.180 (0.130 - 0.390)	0.280 (0.190 - 0.510)
Total Kjeldahl Nitrogen	mg/L	0.41 (0.18 - 0.62)	0.09 (<0.05 - 0.22)	0.36 (0.23 - 0.46)
Orthophosphate Phosphorus	mg/L	0.009 (<0.002 - 0.051)	0.003 (<0.002 - 0.012)	0.005 (<0.002 - 0.020)
Total Phosphorus	mg/L	0.06 (0.03 - 0.11)	0.02 (<0.02 - 0.05)	0.05 (0.03 - 0.11)
Sulphide	mg/L	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)
Aluminium	µg/L	<50 (<50 - <50)	<50 (<50 - <50)	<50 (<50 - <50)
Cadmium	µg/L	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - 0.1)
Chromium	µg/L	2 (<1 - 3)	<1 (<1 - <1)	2 (<1 - 3)
Copper	µg/L	4 (2 - 7)	<1 (<1 - 1)	3 (<1 - 4)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - 23)	<10 (<10 - 10)	<10 (<10 - 18)
Flow	m^3/s	NM	0.023 (0.006 - 0.122)	NM

Notes:
1. Data presented are in annual medians of monthly samples; except those for faecal coliforms and *E. coli* which are in annual geometric means.
2. Figures in brackets are annual ranges.
3. NM indicates no measurement taken.
4. Values at or below laboratory reporting limits are presented as laboratory reporting limits (see Appendix B).
5. Equal values for annual medians (or geometric means) and ranges indicate that all data are the same as or below laboratory reporting limits.

Summary of water quality monitoring data for Shing Mun River (Fo Tan Nullah and Kwun Yam Shan Stream) in 2022

Parameter	Unit	Fo Tan Nullah		Kwun Yam Shan Stream
		TR17	TR17L	KY1
Dissolved Oxygen	mg/L	10.0 (8.0 - 10.7)	6.3 (5.8 - 7.6)	8.3 (7.8 - 10.1)
pH		9.1 (8.4 - 9.9)	7.7 (7.4 - 7.9)	8.2 (8.0 - 8.4)
Suspended Solids	mg/L	2.0 (0.6 - 5.6)	2.9 (0.8 - 4.9)	5.3 (2.5 - 37.0)
5-Day Biochemical Oxygen Demand	mg/L	0.8 (0.3 - 18.0)	2.2 (0.7 - 6.9)	0.5 (<0.1 - 5.1)
Chemical Oxygen Demand	mg/L	9 (3 - 19)	9 (6 - 20)	4 (2 - 11)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
E. coli	counts/ 100 mL	2 600 (500 - 18 000)	1 300 (240 - 18 000)	410 (160 - 2 600)
Faecal Coliforms	counts/ 100 mL	12 000 (1 800 - 63 000)	8 000 (1 300 - 140 000)	1 500 (190 - 7 900)
Ammonia-Nitrogen	mg/L	0.063 (0.010 - 0.270)	0.270 (0.130 - 0.550)	0.016 (<0.005 - 0.035)
Nitrate-Nitrogen	mg/L	0.480 (0.180 - 1.200)	0.460 (0.170 - 0.700)	0.410 (0.160 - 0.690)
Total Kjeldahl Nitrogen	mg/L	0.40 (0.20 - 0.91)	0.50 (0.30 - 1.10)	0.18 (0.08 - 0.43)
Orthophosphate Phosphorus	mg/L	0.012 (0.003 - 0.066)	0.004 (<0.002 - 0.022)	0.070 (0.029 - 0.081)
Total Phosphorus	mg/L	0.04 (<0.02 - 0.12)	0.05 (0.03 - 0.14)	0.09 (0.06 - 0.20)
Sulphide	mg/L	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)
Aluminium	µg/L	<50 (<50 - <50)	<50 (<50 - <50)	<50 (<50 - 51)
Cadmium	µg/L	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - 0.1)	<0.1 (<0.1 - <0.1)
Chromium	µg/L	<1 (<1 - <1)	1 (<1 - 2)	<1 (<1 - <1)
Copper	µg/L	2 (<1 - 4)	2 (1 - 5)	<1 (<1 - 2)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - 13)	17 (10 - 24)	<10 (<10 - <10)
Flow	m^3/s	0.018 (0.005 - 0.082)	NM	0.006 (0.001 - 0.026)

Notes:
1. Data presented are in annual medians of monthly samples; except those for faecal coliforms and *E. coli* which are in annual geometric means.
2. Figures in brackets are annual ranges.
3. NM indicates no measurement taken.
4. Values at or below laboratory reporting limits are presented as laboratory reporting limits (see Appendix B).
5. Equal values for annual medians (or geometric means) and ranges indicate that all data are the same as or below laboratory reporting limits.

Summary of water quality monitoring data for Shing Mun River (Tai Wai Nullah and Tin Sum Nullah) in 2022

Parameter	Unit	Tai Wai Nullah			Tin Sum Nullah
		TR19A	TR19C	TR19	TR20B
Dissolved Oxygen	mg/L	8.6 (8.1 - 9.9)	8.9 (8.1 - 10.5)	9.3 (8.5 - 11.2)	8.3 (7.5 - 9.6)
pH		8.1 (7.7 - 8.7)	7.6 (7.4 - 7.7)	7.5 (7.1 - 7.7)	8.6 (7.7 - 9.7)
Suspended Solids	mg/L	2.4 (1.0 - 13.0)	1.8 (0.6 - 3.7)	2.8 (1.1 - 4.4)	5.6 (1.2 - 1 300.0)
5-Day Biochemical Oxygen Demand	mg/L	0.7 (<0.1 - 6.5)	0.9 (0.7 - 2.3)	1.7 (1.1 - 11.0)	0.1 (<0.1 - 1.0)
Chemical Oxygen Demand	mg/L	6 (3 - 19)	7 (<2 - 17)	7 (3 - 12)	5 (<2 - 61)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
E. coli	counts/ 100 mL	290 (1 - 16 000)	510 (4 - 11 000)	2 700 (510 - 13 000)	1 (<1 - 36)
Faecal Coliforms	counts/ 100 mL	910 (1 - 65 000)	7 200 (350 - 80 000)	40 000 (6 700 - 180 000)	2 (<1 - 300)
Ammonia-Nitrogen	mg/L	0.030 (0.014 - 0.120)	0.027 (0.009 - 0.110)	0.040 (0.015 - 0.084)	0.021 (<0.005 - 0.029)
Nitrate-Nitrogen	mg/L	0.770 (0.290 - 0.940)	0.560 (0.360 - 0.740)	0.520 (0.340 - 0.730)	1.000 (0.220 - 1.300)
Total Kjeldahl Nitrogen	mg/L	0.26 (0.12 - 0.50)	0.27 (0.12 - 0.75)	0.32 (0.16 - 0.72)	0.20 (<0.05 - 0.65)
Orthophosphate Phosphorus	mg/L	0.006 (<0.002 - 0.033)	0.003 (<0.002 - 0.017)	0.004 (<0.002 - 0.008)	0.005 (<0.002 - 0.013)
Total Phosphorus	mg/L	0.04 (<0.02 - 0.08)	0.03 (0.03 - 0.05)	0.04 (0.02 - 0.06)	0.02 (<0.02 - 0.09)
Sulphide	mg/L	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)
Aluminium	µg/L	51 (<50 - 184)	<50 (<50 - 60)	<50 (<50 - <50)	<50 (<50 - 580)
Cadmium	µg/L	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - 0.5)	<0.1 (<0.1 - 0.4)	<0.1 (<0.1 - <0.1)
Chromium	µg/L	<1 (<1 - <1)	<1 (<1 - 2)	<1 (<1 - 1)	1 (<1 - 2)
Copper	µg/L	<1 (<1 - 4)	2 (1 - 9)	3 (2 - 13)	<1 (<1 - 2)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - 28)	15 (<10 - 25)	16 (<10 - 29)	<10 (<10 - <10)
Flow	m^3/s	0.033 (0.013 - 0.082)	0.066 (0.024 - 0.211)	0.115 (0.068 - 0.171)	0.060 (0.024 - 0.133)

Notes:
1. Data presented are in annual medians of monthly samples; except those for faecal coliforms and *E. coli* which are in annual geometric means.
2. Figures in brackets are annual ranges.
3. NM indicates no measurement taken.
4. Values at or below laboratory reporting limits are presented as laboratory reporting limits (see Appendix B).
5. Equal values for annual medians (or geometric means) and ranges indicate that all data are the same as or below laboratory reporting limits.

Summary of water quality monitoring data for Lam Tsuen River in 2022 (Part 1 of 3)

Parameter	Unit	Lam Tsuen River		
		TR12H	TR12D	TR12C
Dissolved Oxygen	mg/L	8.3 (7.9 - 9.6)	8.5 (8.1 - 10.0)	8.3 (8.0 - 9.5)
pH		7.4 (7.2 - 7.6)	7.4 (7.2 - 7.7)	7.5 (7.4 - 7.6)
Suspended Solids	mg/L	1.3 (0.8 - 3.9)	1.2 (<0.5 - 2.6)	2.6 (<0.5 - 4.8)
5-Day Biochemical Oxygen Demand	mg/L	0.4 (<0.1 - 1.0)	0.3 (<0.1 - 0.8)	0.9 (<0.1 - 1.4)
Chemical Oxygen Demand	mg/L	4 (<2 - 28)	4 (<2 - 7)	7 (4 - 13)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
E. coli	counts/ 100 mL	1 100 (270 - 3 500)	420 (80 - 4 800)	5 400 (1 100 - 31 000)
Faecal Coliforms	counts/ 100 mL	4 000 (540 - 17 000)	2 700 (180 - 9 100)	14 000 (5 500 - 110 000)
Ammonia-Nitrogen	mg/L	0.018 (0.013 - 0.043)	0.018 (0.005 - 0.034)	0.094 (0.040 - 0.310)
Nitrate-Nitrogen	mg/L	0.580 (0.180 - 0.690)	0.210 (0.093 - 0.410)	0.570 (0.410 - 0.850)
Total Kjeldahl Nitrogen	mg/L	0.11 (<0.05 - 0.31)	0.11 (0.05 - 0.21)	0.35 (0.22 - 0.68)
Orthophosphate Phosphorus	mg/L	0.019 (0.004 - 0.045)	0.007 (<0.002 - 0.014)	0.036 (0.014 - 0.076)
Total Phosphorus	mg/L	0.04 (0.02 - 0.06)	0.02 (<0.02 - 0.03)	0.08 (0.07 - 0.10)
Sulphide	mg/L	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)
Aluminium	µg/L	<50 (<50 - <50)	<50 (<50 - <50)	<50 (<50 - <50)
Cadmium	µg/L	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)
Chromium	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Copper	µg/L	<1 (<1 - 1)	<1 (<1 - <1)	<1 (<1 - 1)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - 10)	10 (<10 - 18)	<10 (<10 - 10)
Flow	m^3/s	0.230 (0.069 - 0.756)	0.221 (0.019 - 1.444)	0.059 (0.038 - 0.439)

Notes:
1. Data presented are in annual medians of monthly samples; except those for faecal coliforms and *E. coli* which are in annual geometric means.
2. Figures in brackets are annual ranges.
3. NM indicates no measurement taken.
4. Values at or below laboratory reporting limits are presented as laboratory reporting limits (see Appendix B).
5. Equal values for annual medians (or geometric means) and ranges indicate that all data are the same as or below laboratory reporting limits.

Summary of water quality monitoring data for Lam Tsuen River in 2022 (Part 2 of 3)

Parameter	Unit	Lam Tsuen River		
		TR12G	TR12F	TR12B
Dissolved Oxygen	mg/L	7.8 (7.6 - 9.0)	8.6 (8.0 - 9.7)	8.8 (8.2 - 10.3)
pH		7.2 (7.1 - 7.6)	7.4 (7.2 - 7.6)	7.4 (7.2 - 7.8)
Suspended Solids	mg/L	3.0 (0.8 - 11.0)	2.4 (0.8 - 4.1)	2.3 (<0.5 - 5.4)
5-Day Biochemical Oxygen Demand	mg/L	0.3 (<0.1 - 0.8)	0.2 (<0.1 - 8.3)	0.6 (<0.1 - 1.0)
Chemical Oxygen Demand	mg/L	6 (3 - 9)	6 (3 - 9)	5 (<2 - 7)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
E. coli	counts/ 100 mL	300 (90 - 1 200)	3 000 (520 - 16 000)	750 (220 - 4 700)
Faecal Coliforms	counts/ 100 mL	3 900 (720 - 17 000)	7 300 (2 200 - 26 000)	4 600 (690 - 25 000)
Ammonia-Nitrogen	mg/L	0.013 (<0.005 - 0.023)	0.019 (0.008 - 0.027)	0.026 (<0.005 - 0.064)
Nitrate-Nitrogen	mg/L	0.071 (<0.002 - 0.170)	0.240 (0.120 - 0.380)	0.470 (0.360 - 1.000)
Total Kjeldahl Nitrogen	mg/L	0.17 (0.14 - 0.23)	0.14 (0.10 - 0.28)	0.14 (<0.05 - 0.27)
Orthophosphate Phosphorus	mg/L	0.010 (0.004 - 0.026)	0.011 (0.004 - 0.052)	0.015 (0.006 - 0.031)
Total Phosphorus	mg/L	0.04 (0.03 - 0.06)	0.04 (<0.02 - 0.06)	0.04 (0.03 - 0.07)
Sulphide	mg/L	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)
Aluminium	µg/L	<50 (<50 - <50)	<50 (<50 - <50)	<50 (<50 - <50)
Cadmium	µg/L	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)
Chromium	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Copper	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - 11)	<10 (<10 - <10)	<10 (<10 - <10)
Flow	m^3/s	0.044 (0.025 - 0.177)	0.113 (0.008 - 0.269)	0.363 (0.092 - 0.923)

Notes:
1. Data presented are in annual medians of monthly samples; except those for faecal coliforms and *E. coli* which are in annual geometric means.
2. Figures in brackets are annual ranges.
3. NM indicates no measurement taken.
4. Values at or below laboratory reporting limits are presented as laboratory reporting limits (see Appendix B).
5. Equal values for annual medians (or geometric means) and ranges indicate that all data are the same as or below laboratory reporting limits.

Summary of water quality monitoring data for Lam Tsuen River (Part 3 of 3) and Tai Po River in 2022

Parameter	Unit	Lam Tsuen River			Tai Po River
		TR12E	TR12	TR12I	TR13
Dissolved Oxygen	mg/L	8.3 (7.6 - 9.5)	10.6 (6.7 - 14.5)	4.8 (3.8 - 7.6)	8.6 (7.9 - 10.0)
pH		8.3 (7.7 - 9.5)	7.6 (7.2 - 8.8)	7.2 (7.1 - 7.5)	7.7 (6.6 - 8.1)
Suspended Solids	mg/L	1.7 (<0.5 - 5.0)	1.7 (0.8 - 24.0)	2.6 (1.3 - 6.0)	4.9 (1.5 - 16.0)
5-Day Biochemical Oxygen Demand	mg/L	<0.1 (<0.1 - 0.6)	2.6 (0.6 - 13.0)	2.5 (1.1 - 4.4)	1.5 (0.2 - 6.5)
Chemical Oxygen Demand	mg/L	3 (2 - 6)	12 (4 - 46)	12 (7 - 26)	6 (3 - 19)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
E. coli	counts/ 100 mL	340 (1 - 17 000)	2 700 (1 - 32 000)	58 000 (18 000 - 150 000)	11 000 (3 800 - 110 000)
Faecal Coliforms	counts/ 100 mL	670 (1 - 19 000)	11 000 (1 - 130 000)	180 000 (62 000 - 530 000)	22 000 (7 000 - 110 000)
Ammonia-Nitrogen	mg/L	0.037 (0.015 - 0.086)	0.055 (0.014 - 8.000)	0.595 (0.093 - 1.400)	0.109 (0.031 - 1.600)
Nitrate-Nitrogen	mg/L	0.990 (0.460 - 1.700)	0.970 (0.500 - 5.100)	0.610 (0.190 - 0.960)	0.540 (0.330 - 1.100)
Total Kjeldahl Nitrogen	mg/L	0.16 (0.05 - 0.23)	0.57 (0.14 - 13.00)	0.88 (0.28 - 1.90)	0.27 (0.16 - 2.70)
Orthophosphate Phosphorus	mg/L	0.010 (0.003 - 0.019)	0.084 (0.005 - 0.900)	0.044 (0.011 - 0.110)	0.033 (0.012 - 0.091)
Total Phosphorus	mg/L	0.03 (<0.02 - 0.05)	0.15 (0.05 - 1.90)	0.11 (0.06 - 0.22)	0.08 (0.03 - 0.16)
Sulphide	mg/L	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - 0.03)
Aluminium	µg/L	71 (<50 - 186)	<50 (<50 - <50)	<50 (<50 - <50)	<50 (<50 - 123)
Cadmium	µg/L	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - 0.1)	<0.1 (<0.1 - <0.1)
Chromium	µg/L	<1 (<1 - 1)	<1 (<1 - <1)	1 (<1 - 3)	<1 (<1 - 1)
Copper	µg/L	<1 (<1 - 1)	2 (<1 - 4)	2 (<1 - 5)	<1 (<1 - 2)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - <10)	<10 (<10 - 16)	13 (<10 - 20)	<10 (<10 - 12)
Flow	m^3/s	0.209 (0.078 - 0.493)	0.045 (0.023 - 0.435)	NM	0.405 (0.120 - 1.190)

Notes:
1. Data presented are in annual medians of monthly samples; except those for faecal coliforms and *E. coli* which are in annual geometric means.
2. Figures in brackets are annual ranges.
3. NM indicates no measurement taken.
4. Values at or below laboratory reporting limits are presented as laboratory reporting limits (see Appendix B).
5. Equal values for annual medians (or geometric means) and ranges indicate that all data are the same as or below laboratory reporting limits.

Summary of water quality monitoring data for Tai Po Kau Stream, Shan Liu Stream and Tung Tze Stream in 2022

Parameter	Unit	Tai Po Kau Stream TR14	Shan Liu Stream TR4	Tung Tze Stream TR6
Dissolved Oxygen	mg/L	8.0 (6.0 - 9.9)	8.0 (7.4 - 9.3)	6.1 (4.5 - 7.4)
pH		7.0 (6.7- 7.6)	7.6 (7.1 - 7.9)	7.4 (7.1 - 8.2)
Suspended Solids	mg/L	1.8 (0.6 - 6.6)	3.4 (1.4 - 14.0)	5.4 (2.9 - 29.0)
5-Day Biochemical Oxygen Demand	mg/L	0.3 (<0.1 - 3.2)	1.1 (0.4 - 5.4)	1.9 (0.6 - 7.4)
Chemical Oxygen Demand	mg/L	5 (2 - 17)	7 (<2 - 11)	13 (5 - 34)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
E. coli	counts/ 100 mL	830 (64 - 23 000)	2 000 (600 - 15 000)	2 700 (51 - 31 000)
Faecal Coliforms	counts/ 100 mL	2 600 (130 - 33 000)	10 000 (2 900 - 37 000)	6 600 (100 - 52 000)
Ammonia-Nitrogen	mg/L	0.095 (0.060 - 0.320)	0.097 (0.013 - 0.310)	0.485 (0.063 - 1.000)
Nitrate-Nitrogen	mg/L	0.225 (0.150 - 0.700)	0.550 (0.140 - 1.100)	0.395 (<0.002 - 0.720)
Total Kjeldahl Nitrogen	mg/L	0.24 (0.14 - 0.48)	0.23 (0.13 - 0.51)	0.78 (0.11 - 1.90)
Orthophosphate Phosphorus	mg/L	0.004 (<0.002 - 0.037)	0.025 (0.008 - 0.080)	0.040 (<0.002 - 0.110)
Total Phosphorus	mg/L	0.04 (<0.02 - 0.05)	0.06 (0.03 - 0.10)	0.08 (0.04 - 0.20)
Sulphide	mg/L	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)
Aluminium	µg/L	<50 (<50 - 167)	<50 (<50 - <50)	<50 (<50 - <50)
Cadmium	µg/L	<0.1 (<0.1 - 0.1)	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)
Chromium	µg/L	<1 (<1 - 2)	<1 (<1 - 1)	1 (<1 - 2)
Copper	µg/L	<1 (<1 - 4)	<1 (<1 - 1)	3 (<1 - 5)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - 20)	<10 (<10 - 11)	10 (<10 - 20)
Flow	m^3/s	0.071 (0.020 - 0.570)	0.045 (0.013 - 0.228)	NM

Notes:
1. Data presented are in annual medians of monthly samples; except those for faecal coliforms and *E. coli* which are in annual geometric means.
2. Figures in brackets are annual ranges.
3. NM indicates no measurement taken.
4. Values at or below laboratory reporting limits are presented as laboratory reporting limits (see Appendix B).
5. Equal values for annual medians (or geometric means) and ranges indicate that all data are the same as or below laboratory reporting limits.

Summary of water quality monitoring data for Ho Chung River in 2022

Parameter	Unit	Ho Chung River	
		PR1	PR2
Dissolved Oxygen	mg/L	6.9 (4.9 - 8.4)	8.3 (8.0 - 9.7)
pH		7.3 (7.1 - 7.6)	7.3 (7.1 - 7.6)
Suspended Solids	mg/L	4.2 (1.8 - 11.0)	2.7 (<0.5 - 7.9)
5-Day Biochemical Oxygen Demand	mg/L	1.2 (0.6 - 5.6)	0.7 (0.3 - 1.2)
Chemical Oxygen Demand	mg/L	10 (5 - 14)	5 (3 - 9)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
E. coli	counts/ 100 mL	3 100 (290 - 15 000)	2 400 (800 - 8 000)
Faecal Coliforms	counts/ 100 mL	10 000 (1 100 - 32 000)	9 000 (3 500 - 23 000)
Ammonia-Nitrogen	mg/L	0.305 (0.120 - 1.600)	0.052 (0.015 - 0.280)
Nitrate-Nitrogen	mg/L	0.340 (0.250 - 0.630)	0.360 (0.190 - 0.500)
Total Kjeldahl Nitrogen	mg/L	0.66 (0.30 - 2.20)	0.26 (0.10 - 0.33)
Orthophosphate Phosphorus	mg/L	0.031 (<0.002 - 0.100)	0.012 (0.004 - 0.021)
Total Phosphorus	mg/L	0.10 (0.04 - 0.17)	0.03 (0.02 - 0.06)
Sulphide	mg/L	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)
Aluminium	µg/L	<50 (<50 - <50)	<50 (<50 - <50)
Cadmium	µg/L	<0.1 (<0.1 - 0.1)	<0.1 (<0.1 - <0.1)
Chromium	µg/L	1 (<1 - 2)	<1 (<1 - <1)
Copper	µg/L	2 (<1 - 5)	<1 (<1 - 1)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	17 (<10 - 30)	<10 (<10 - 13)
Flow	m^3/s	NM	0.624 (0.180 - 10.736)

Notes:
1. Data presented are in annual medians of monthly samples; except those for faecal coliforms and *E. coli* which are in annual geometric means.
2. Figures in brackets are annual ranges.
3. NM indicates no measurement taken.
4. Values at or below laboratory reporting limits are presented as laboratory reporting limits (see Appendix B).
5. Equal values for annual medians (or geometric means) and ranges indicate that all data are the same as or below laboratory reporting limits.

Summary of water quality monitoring data for Sha Kok Mei Stream in 2022

Parameter	Unit	Sha Kok Mei Stream	
		PR5	PR6
Dissolved Oxygen	mg/L	6.6 (5.2 - 8.1)	8.2 (7.8 - 9.6)
pH		7.5 (7.1 - 7.8)	7.4 (7.0 - 7.7)
Suspended Solids	mg/L	4.8 (1.9 - 130.0)	4.6 (1.4 - 110.0)
5-Day Biochemical Oxygen Demand	mg/L	3.3 (1.3 - 5.2)	1.3 (0.3 - 12.0)
Chemical Oxygen Demand	mg/L	12 (5 - 69)	9 (4 - 57)
Oil & Grease	mg/L	<0.5 (<0.5 - 0.6)	<0.5 (<0.5 - <0.5)
E. coli	counts/ 100 mL	12 000 (270 - 36 000)	11 000 (2 200 - 36 000)
Faecal Coliforms	counts/ 100 mL	34 000 (2 400 - 90 000)	25 000 (11 000 - 58 000)
Ammonia-Nitrogen	mg/L	0.380 (0.200 - 0.870)	0.130 (0.066 - 0.610)
Nitrate-Nitrogen	mg/L	1.000 (0.570 - 1.400)	1.400 (1.000 - 1.900)
Total Kjeldahl Nitrogen	mg/L	0.93 (0.47 - 1.50)	0.44 (0.28 - 1.10)
Orthophosphate Phosphorus	mg/L	0.070 (0.049 - 0.120)	0.060 (0.037 - 0.120)
Total Phosphorus	mg/L	0.15 (0.09 - 0.33)	0.11 (0.08 - 0.26)
Sulphide	mg/L	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)
Aluminium	µg/L	<50 (<50 - 57)	<50 (<50 - 78)
Cadmium	µg/L	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)
Chromium	µg/L	<1 (<1 - 1)	<1 (<1 - <1)
Copper	µg/L	1 (<1 - 2)	<1 (<1 - 2)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - 20)	<10 (<10 - 12)
Flow	m^3/s	NM	NM

Notes:
1. Data presented are in annual medians of monthly samples; except those for faecal coliforms and *E. coli* which are in annual geometric means.
2. Figures in brackets are annual ranges.
3. NM indicates no measurement taken.
4. Values at or below laboratory reporting limits are presented as laboratory reporting limits (see Appendix B).
5. Equal values for annual medians (or geometric means) and ranges indicate that all data are the same as or below laboratory reporting limits.

Summary of water quality monitoring data for Tai Chung Hau Stream in 2022

Parameter	Unit	Tai Chung Hau Stream	
		PR7	PR8
Dissolved Oxygen	mg/L	8.1 (7.7 - 10.5)	8.1 (7.5 - 8.9)
pH		7.6 (7.2 - 10.3)	7.6 (4.8 - 9.8)
Suspended Solids	mg/L	3.6 (0.9 - 180.0)	2.9 (0.8 - 270.0)
5-Day Biochemical Oxygen Demand	mg/L	1.7 (0.8 - 3.9)	3.0 (0.2 - 7.8)
Chemical Oxygen Demand	mg/L	9 (4 - 62)	11 (4 - 79)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
E. coli	counts/ 100 mL	4 300 (140 - 21 000)	2 400 (10 - 36 000)
Faecal Coliforms	counts/ 100 mL	18 000 (800 - 77 000)	10 000 (20 - 150 000)
Ammonia-Nitrogen	mg/L	0.050 (0.026 - 0.140)	0.094 (0.039 - 0.160)
Nitrate-Nitrogen	mg/L	0.520 (0.310 - 0.720)	0.590 (0.310 - 0.750)
Total Kjeldahl Nitrogen	mg/L	0.41 (0.33 - 1.40)	0.50 (0.30 - 1.80)
Orthophosphate Phosphorus	mg/L	0.022 (<0.002 - 0.063)	0.025 (<0.002 - 0.085)
Total Phosphorus	mg/L	0.06 (0.04 - 0.33)	0.10 (0.05 - 0.45)
Sulphide	mg/L	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)
Aluminium	µg/L	<50 (<50 - 110)	<50 (<50 - 18 566)
Cadmium	µg/L	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - 0.2)
Chromium	µg/L	<1 (<1 - 4)	<1 (<1 - 5)
Copper	µg/L	1 (<1 - 3)	1 (<1 - 4)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - 12)	<10 (<10 - 152)
Flow	m^3/s	0.648 (0.069 - 3.374)	NM

Notes:
1. Data presented are in annual medians of monthly samples; except those for faecal coliforms and *E. coli* which are in annual geometric means.
2. Figures in brackets are annual ranges.
3. NM indicates no measurement taken.
4. Values at or below laboratory reporting limits are presented as laboratory reporting limits (see Appendix B).
5. Equal values for annual medians (or geometric means) and ranges indicate that all data are the same as or below laboratory reporting limits.

Summary of water quality monitoring data for Tseng Lan Shue Stream in 2022

Parameter	Unit	Tseng Lan Shue Stream		
		JR3	JR6	JR11
Dissolved Oxygen	mg/L	5.9 (3.7 - 7.8)	7.6 (7.3 - 8.8)	9.0 (7.9 - 10.1)
pH		7.0 (6.7 - 7.3)	7.4 (7.1 - 7.5)	7.5 (7.0 - 7.7)
Suspended Solids	mg/L	8.1 (2.3 - 52.0)	4.4 (1.5 - 33.0)	3.2 (1.8 - 7.8)
5-Day Biochemical Oxygen Demand	mg/L	6.3 (3.1 - 16.0)	5.1 (1.0 - 12.0)	1.3 (0.7 - 2.3)
Chemical Oxygen Demand	mg/L	17 (9 - 38)	18 (8 - 30)	11 (6 - 14)
Oil & Grease	mg/L	<0.5 (<0.5 - 1.5)	<0.5 (<0.5 - 1.2)	<0.5 (<0.5 - <0.5)
E. coli	counts/ 100 mL	56 000 (21 000 - 190 000)	29 000 (6 000 - 130 000)	880 (180 - 6 000)
Faecal Coliforms	counts/ 100 mL	100 000 (33 000 - 280 000)	69 000 (12 000 - 160 000)	4 200 (710 - 22 000)
Ammonia-Nitrogen	mg/L	2.900 (0.940 - 11.000)	0.220 (<0.005 - 0.500)	0.073 (0.015 - 0.470)
Nitrate-Nitrogen	mg/L	1.300 (0.300 - 2.000)	1.900 (<0.002 - 2.800)	2.100 (1.300 - 5.500)
Total Kjeldahl Nitrogen	mg/L	3.50 (1.00 - 14.00)	1.00 (0.09 - 1.70)	0.42 (0.09 - 1.50)
Orthophosphate Phosphorus	mg/L	0.280 (0.110 - 0.690)	0.280 (0.075 - 0.460)	0.200 (0.085 - 0.610)
Total Phosphorus	mg/L	0.46 (0.25 - 1.00)	0.45 (0.11 - 0.73)	0.26 (0.10 - 0.78)
Sulphide	mg/L	<0.02 (<0.02 - 0.05)	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)
Aluminium	µg/L	<50 (<50 - 334)	<50 (<50 - <50)	<50 (<50 - <50)
Cadmium	µg/L	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)
Chromium	µg/L	<1 (<1 - 2)	<1 (<1 - <1)	<1 (<1 - <1)
Copper	µg/L	1 (1 - 3)	2 (1 - 3)	1 (<1 - 2)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	14 (<10 - 21)	<10 (<10 - 20)	<10 (<10 - 10)
Flow	m^3/s	NM	NM	1.021 (0.216 - 6.256)

Notes:
1. Data presented are in annual medians of monthly samples; except those for faecal coliforms and *E. coli* which are in annual geometric means.
2. Figures in brackets are annual ranges.
3. NM indicates no measurement taken.
4. Values at or below laboratory reporting limits are presented as laboratory reporting limits (see Appendix B).
5. Equal values for annual medians (or geometric means) and ranges indicate that all data are the same as or below laboratory reporting limits.

Summary of water quality monitoring data for River Indus in 2022

Parameter	Unit	River Indus		
		IN1	IN2	IN3
Dissolved Oxygen	mg/L	5.9 (2.9 - 7.9)	6.4 (5.6 - 10.9)	8.7 (7.9 - 10.1)
pH		7.1 (6.9 - 7.4)	7.2 (7.0 - 7.7)	7.8 (7.2 - 8.0)
Suspended Solids	mg/L	17.0 (2.6 - 26.0)	6.0 (1.8 - 73.0)	2.7 (1.2 - 27.0)
5-Day Biochemical Oxygen Demand	mg/L	4.2 (1.7 - 9.6)	3.9 (1.4 - 12.0)	0.9 (0.6 - 4.0)
Chemical Oxygen Demand	mg/L	25 (5 - 47)	10 (6 - 32)	7 (3 - 15)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
E. coli	counts/ 100 mL	28 000 (1 600 - 1 100 000)	9 000 (320 - 90 000)	2 500 (560 - 10 000)
Faecal Coliforms	counts/ 100 mL	94 000 (11 000 - 3 000 000)	32 000 (2 100 - 560 000)	6 900 (760 - 25 000)
Ammonia-Nitrogen	mg/L	1.050 (0.220 - 3.800)	0.620 (0.180 - 0.960)	0.049 (0.034 - 0.270)
Nitrate-Nitrogen	mg/L	2.050 (0.420 - 4.500)	0.790 (0.470 - 1.400)	0.490 (0.041 - 0.790)
Total Kjeldahl Nitrogen	mg/L	2.70 (0.81 - 5.30)	1.20 (0.68 - 2.10)	0.32 (0.17 - 1.50)
Orthophosphate Phosphorus	mg/L	0.220 (0.049 - 0.470)	0.056 (0.032 - 0.075)	0.055 (0.017 - 0.099)
Total Phosphorus	mg/L	0.40 (0.15 - 0.73)	0.17 (0.11 - 0.22)	0.13 (0.09 - 0.32)
Sulphide	mg/L	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)
Aluminium	µg/L	<50 (<50 - <50)	<50 (<50 - <50)	<50 (<50 - 59)
Cadmium	µg/L	<0.1 (<0.1 - 0.3)	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)
Chromium	µg/L	<1 (<1 - 3)	<1 (<1 - <1)	<1 (<1 - <1)
Copper	µg/L	2 (1 - 3)	1 (<1 - 4)	<1 (<1 - 2)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	11 (<10 - 73)	<10 (<10 - 20)	<10 (<10 - 13)
Flow	m^3/s	13.013 (3.850 - 25.025)	NM	0.069 (0.036 - 0.153)

Notes:
1. Data presented are in annual medians of monthly samples; except those for faecal coliforms and *E. coli* which are in annual geometric means.
2. Figures in brackets are annual ranges.
3. NM indicates no measurement taken.
4. Values at or below laboratory reporting limits are presented as laboratory reporting limits (see Appendix B).
5. Equal values for annual medians (or geometric means) and ranges indicate that all data are the same as or below laboratory reporting limits.

Summary of water quality monitoring data for River Beas in 2022

Parameter	Unit	River Beas		
		RB1	RB2	RB3
Dissolved Oxygen	mg/L	9.4 (8.3 - 11.4)	7.3 (6.4 - 9.9)	7.9 (4.7 - 13.3)
pH		8.0 (7.3 - 8.3)	7.3 (6.8 - 7.4)	7.4 (7.1 - 8.4)
Suspended Solids	mg/L	5.2 (2.6 - 14.0)	4.0 (1.9 - 13.0)	19.0 (1.6 - 690.0)
5-Day Biochemical Oxygen Demand	mg/L	2.0 (1.1 - 8.8)	5.0 (1.8 - 8.1)	6.1 (1.4 - 30.0)
Chemical Oxygen Demand	mg/L	9 (6 - 15)	12 (5 - 18)	15 (4 - 98)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
E. coli	counts/ 100 mL	3 200 (800 - 9 600)	5 200 (380 - 24 000)	9 300 (530 - 57 000)
Faecal Coliforms	counts/ 100 mL	14 000 (2 900 - 100 000)	25 000 (1 700 - 520 000)	38 000 (1 200 - 280 000)
Ammonia-Nitrogen	mg/L	0.120 (0.070 - 0.730)	0.790 (0.120 - 2.600)	1.150 (0.130 - 4.100)
Nitrate-Nitrogen	mg/L	0.680 (0.260 - 1.100)	0.550 (0.081 - 0.920)	0.655 (0.330 - 1.700)
Total Kjeldahl Nitrogen	mg/L	0.66 (0.36 - 1.90)	1.50 (0.48 - 3.80)	2.40 (0.47 - 6.20)
Orthophosphate Phosphorus	mg/L	0.160 (0.063 - 0.250)	0.110 (0.058 - 0.210)	0.110 (0.069 - 0.220)
Total Phosphorus	mg/L	0.29 (0.10 - 0.43)	0.24 (0.10 - 0.53)	0.36 (0.14 - 0.94)
Sulphide	mg/L	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - 0.02)
Aluminium	µg/L	<50 (<50 - 140)	<50 (<50 - <50)	<50 (<50 - <50)
Cadmium	µg/L	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)
Chromium	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Copper	µg/L	<1 (<1 - 1)	1 (<1 - 3)	1 (<1 - 3)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - <10)	<10 (<10 - 14)	<10 (<10 - 16)
Flow	m^3/s	0.176 (0.081 - 3.339)	0.265 (0.010 - 33.600)	NM

Notes:
1. Data presented are in annual medians of monthly samples; except those for faecal coliforms and *E. coli* which are in annual geometric means.
2. Figures in brackets are annual ranges.
3. NM indicates no measurement taken.
4. Values at or below laboratory reporting limits are presented as laboratory reporting limits (see Appendix B).
5. Equal values for annual medians (or geometric means) and ranges indicate that all data are the same as or below laboratory reporting limits.

Summary of water quality monitoring data for River Ganges in 2022

Parameter	Unit	River Ganges		
		GR1	GR2	GR3
Dissolved Oxygen	mg/L	8.7 (6.6 - 12.1)	6.0 (4.6 - 6.6)	7.4 (6.4 - 8.1)
pH		7.4 (7.2 - 8.1)	7.1 (6.9 - 7.3)	7.1 (6.7 - 7.3)
Suspended Solids	mg/L	10.3 (3.9 - 29.0)	14.0 (3.2 - 40.0)	18.0 (4.1 - 180.0)
5-Day Biochemical Oxygen Demand	mg/L	5.2 (2.6 - 16.0)	3.1 (2.2 - 12.0)	1.2 (0.3 - 3.2)
Chemical Oxygen Demand	mg/L	19 (9 - 31)	17 (10 - 58)	6 (3 - 12)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
E. coli	counts/ 100 mL	5 300 (500 - 28 000)	7 100 (1 200 - 120 000)	840 (150 - 3 400)
Faecal Coliforms	counts/ 100 mL	23 000 (1 100 - 2 300 000)	19 000 (3 000 - 170 000)	8 800 (1 400 - 60 000)
Ammonia-Nitrogen	mg/L	4.450 (0.590 - 14.000)	4.000 (0.250 - 16.000)	0.100 (0.015 - 8.100)
Nitrate-Nitrogen	mg/L	1.100 (0.380 - 1.800)	0.850 (0.130 - 1.500)	0.180 (0.099 - 0.420)
Total Kjeldahl Nitrogen	mg/L	5.45 (1.20 - 16.00)	6.50 (0.93 - 18.00)	0.43 (0.14 - 11.00)
Orthophosphate Phosphorus	mg/L	0.305 (0.160 - 1.200)	0.190 (0.019 - 0.290)	0.003 (<0.002 - 0.140)
Total Phosphorus	mg/L	0.58 (0.38 - 1.90)	0.53 (0.37 - 0.93)	0.03 (<0.02 - 0.19)
Sulphide	mg/L	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - 0.02)
Aluminium	µg/L	<50 (<50 - <50)	<50 (<50 - <50)	<50 (<50 - <50)
Cadmium	µg/L	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)
Chromium	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Copper	µg/L	2 (1 - 6)	1 (<1 - 5)	<1 (<1 - 1)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - 17)	<10 (<10 - 20)	<10 (<10 - 18)
Flow	m^3/s	0.078 (0.009 - 0.218)	0.182 (0.024 - 1.056)	0.023 (0.004 - 0.103)

Notes:
1. Data presented are in annual medians of monthly samples; except those for faecal coliforms and *E. coli* which are in annual geometric means.
2. Figures in brackets are annual ranges.
3. NM indicates no measurement taken.
4. Values at or below laboratory reporting limits are presented as laboratory reporting limits (see Appendix B).
5. Equal values for annual medians (or geometric means) and ranges indicate that all data are the same as or below laboratory reporting limits.

Summary of water quality monitoring data for Yuen Long Creek in 2022 (Part 1 of 2)

Parameter	Unit	Yuen Long Creek	
		YL1	YL2
Dissolved Oxygen	mg/L	4.5 (1.8 - 7.7)	7.4 (6.2 - 9.2)
pH		7.1 (6.9 - 7.5)	7.6 (7.1 - 10.3)
Suspended Solids	mg/L	10.0 (7.2 - 39.0)	3.6 (1.9 - 160.0)
5-Day Biochemical Oxygen Demand	mg/L	15.0 (5.4 - 72.0)	5.5 (0.5 - 26.0)
Chemical Oxygen Demand	mg/L	25 (12 - 170)	17 (10 - 37)
Oil & Grease	mg/L	0.6 (<0.5 - 1.1)	<0.5 (<0.5 - 0.8)
E. coli	counts/ 100 mL	270 000 (52 000 - 4 100 000)	69 000 (2 000 - 230 000)
Faecal Coliforms	counts/ 100 mL	430 000 (90 000 - 5 100 000)	180 000 (22 000 - 730 000)
Ammonia-Nitrogen	mg/L	6.100 (0.970 - 29.000)	3.600 (0.750 - 5.700)
Nitrate-Nitrogen	mg/L	0.420 (<0.002 - 0.920)	0.800 (0.470 - 1.300)
Total Kjeldahl Nitrogen	mg/L	6.50 (1.40 - 35.00)	4.10 (1.50 - 6.40)
Orthophosphate Phosphorus	mg/L	0.560 (0.190 - 2.900)	0.210 (0.008 - 0.370)
Total Phosphorus	mg/L	0.94 (0.36 - 3.00)	0.36 (0.20 - 0.48)
Sulphide	mg/L	0.03 (<0.02 - 0.08)	<0.02 (<0.02 - 0.03)
Aluminium	µg/L	<50 (<50 - <50)	60 (<50 - 288)
Cadmium	µg/L	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)
Chromium	µg/L	<1 (<1 - <1)	<1 (<1 - 11)
Copper	µg/L	3 (1 - 10)	2 (1 - 4)
Lead	µg/L	<1 (<1 - 1)	<1 (<1 - <1)
Zinc	µg/L	20 (<10 - 36)	<10 (<10 - 40)
Flow	m^3/s	0.242 (0.084 - 0.797)	0.020 (0.011 - 0.077)

Notes:
1. Data presented are in annual medians of monthly samples; except those for faecal coliforms and *E. coli* which are in annual geometric means.
2. Figures in brackets are annual ranges.
3. NM indicates no measurement taken.
4. Values at or below laboratory reporting limits are presented as laboratory reporting limits (see Appendix B).
5. Equal values for annual medians (or geometric means) and ranges indicate that all data are the same as or below laboratory reporting limits.

Summary of water quality monitoring data for Yuen Long Creek in 2022 (Part 2 of 2)

Parameter	Unit	Yuen Long Creek	
		YL3	YL4
Dissolved Oxygen	mg/L	3.5 (1.9 - 6.3)	3.1 (1.8 - 6.7)
pH		7.3 (7.0 - 8.7)	7.2 (7.1 - 7.6)
Suspended Solids	mg/L	24.5 (6.6 - 75.0)	17.0 (7.2 - 87.0)
5-Day Biochemical Oxygen Demand	mg/L	57.0 (9.1 - 90.0)	87.0 (23.0 - 140.0)
Chemical Oxygen Demand	mg/L	69 (14 - 150)	68 (38 - 130)
Oil & Grease	mg/L	1.6 (<0.5 - 2.4)	2.5 (0.6 - 5.2)
E. coli	counts/ 100 mL	860 000 (330 000 - 2 400 000)	1 200 000 (260 000 - 2 800 000)
Faecal Coliforms	counts/ 100 mL	1 500 000 (550 000 - 3 700 000)	2 300 000 (750 000 - 6 400 000)
Ammonia-Nitrogen	mg/L	5.850 (1.100 - 14.000)	5.100 (0.770 - 7.100)
Nitrate-Nitrogen	mg/L	0.010 (<0.002 - 0.690)	0.004 (<0.002 - 0.310)
Total Kjeldahl Nitrogen	mg/L	7.70 (1.90 - 20.00)	8.20 (1.70 - 13.00)
Orthophosphate Phosphorus	mg/L	0.500 (0.095 - 1.200)	0.280 (0.005 - 0.510)
Total Phosphorus	mg/L	0.89 (0.33 - 2.10)	0.82 (0.23 - 1.50)
Sulphide	mg/L	0.05 (<0.02 - 0.16)	0.07 (<0.02 - 0.15)
Aluminium	µg/L	<50 (<50 - 73)	<50 (<50 - <50)
Cadmium	µg/L	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)
Chromium	µg/L	<1 (<1 - 4)	<1 (<1 - <1)
Copper	µg/L	2 (1 - 8)	2 (2 - 3)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	12 (<10 - 33)	12 (<10 - 41)
Flow	m^3/s	0.812 (0.624 - 1.352)	0.146 (0.098 - 0.222)

Notes:
1. Data presented are in annual medians of monthly samples; except those for faecal coliforms and *E. coli* which are in annual geometric means.
2. Figures in brackets are annual ranges.
3. NM indicates no measurement taken.
4. Values at or below laboratory reporting limits are presented as laboratory reporting limits (see Appendix B).
5. Equal values for annual medians (or geometric means) and ranges indicate that all data are the same as or below laboratory reporting limits.

Summary of water quality monitoring data for Kam Tin River in 2022

Parameter	Unit	Kam Tin River	
		KT1	KT2
Dissolved Oxygen	mg/L	5.4 (3.1 - 7.0)	3.7 (1.1 - 6.9)
pH		7.4 (7.1 - 7.9)	7.4 (7.2 - 8.0)
Suspended Solids	mg/L	8.8 (1.5 - 27.0)	35.0 (3.8 - 58.0)
5-Day Biochemical Oxygen Demand	mg/L	10.0 (5.2 - 14.0)	21.0 (3.2 - 150.0)
Chemical Oxygen Demand	mg/L	20 (12 - 65)	52 (9 - 170)
Oil & Grease	mg/L	<0.5 (<0.5 - 0.8)	1.1 (<0.5 - 2.4)
E. coli	counts/ 100 mL	41 000 (5 000 - 340 000)	110 000 (24 000 - 1 700 000)
Faecal Coliforms	counts/ 100 mL	150 000 (52 000 - 470 000)	270 000 (62 000 - 1 900 000)
Ammonia-Nitrogen	mg/L	4.100 (0.670 - 10.000)	7.800 (0.480 - 25.000)
Nitrate-Nitrogen	mg/L	0.870 (0.410 - 3.300)	0.200 (<0.002 - 0.560)
Total Kjeldahl Nitrogen	mg/L	5.45 (1.80 - 12.00)	9.00 (1.90 - 31.00)
Orthophosphate Phosphorus	mg/L	0.770 (0.260 - 1.300)	0.830 (0.180 - 2.400)
Total Phosphorus	mg/L	1.20 (0.40 - 1.60)	1.40 (0.44 - 3.80)
Sulphide	mg/L	<0.02 (<0.02 - 0.04)	0.05 (<0.02 - 0.11)
Aluminium	µg/L	<50 (<50 - <50)	<50 (<50 - 70)
Cadmium	µg/L	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)
Chromium	µg/L	<1 (<1 - <1)	<1 (<1 - <1)
Copper	µg/L	2 (1 - 7)	1 (<1 - 4)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	10 (<10 - 25)	<10 (<10 - 25)
Flow	m^3/s	0.462 (0.244 - 17.587)	0.414 (0.186 - 15.984)

Notes:
1. Data presented are in annual medians of monthly samples; except those for faecal coliforms and *E. coli* which are in annual geometric means.
2. Figures in brackets are annual ranges.
3. NM indicates no measurement taken.
4. Values at or below laboratory reporting limits are presented as laboratory reporting limits (see Appendix B).
5. Equal values for annual medians (or geometric means) and ranges indicate that all data are the same as or below laboratory reporting limits.

Summary of water quality monitoring data for Tin Shui Wai Nullah and Fairview Park Nullah in 2022

Parameter	Unit	Tin Shui Wai Nullah		Fairview Park Nullah
		TSR1	TSR2	FVR1
Dissolved Oxygen	mg/L	7.2 (2.6 - 10.3)	9.0 (8.4 - 11.0)	6.4 (3.3 - 10.4)
pH		7.7 (7.3 - 9.1)	8.2 (7.5 - 9.2)	7.4 (6.9 - 8.6)
Suspended Solids	mg/L	8.2 (1.1 - 32.0)	4.2 (1.4 - 16.0)	19.0 (1.2 - 83.0)
5-Day Biochemical Oxygen Demand	mg/L	3.6 (2.3 - 8.5)	1.6 (0.8 - 5.3)	10.0 (5.5 - 16.0)
Chemical Oxygen Demand	mg/L	14 (8 - 19)	7 (6 - 39)	29 (23 - 66)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - 0.7)
E. coli	counts/ 100 mL	27 000 (10 000 - 150 000)	26 000 (3 400 - 200 000)	51 000 (5 900 - 1 100 000)
Faecal Coliforms	counts/ 100 mL	98 000 (28 000 - 290 000)	50 000 (4 700 - 250 000)	120 000 (17 000 - 1 400 000)
Ammonia-Nitrogen	mg/L	1.400 (0.630 - 4.800)	0.640 (0.120 - 2.200)	1.100 (0.320 - 2.900)
Nitrate-Nitrogen	mg/L	0.750 (0.410 - 0.950)	0.710 (0.570 - 1.100)	0.470 (0.095 - 1.500)
Total Kjeldahl Nitrogen	mg/L	2.00 (1.20 - 6.00)	4.00 (0.73 - 16.00)	3.00 (2.00 - 4.50)
Orthophosphate Phosphorus	mg/L	0.120 (0.074 - 0.210)	0.014 (0.005 - 0.150)	0.260 (0.130 - 0.470)
Total Phosphorus	mg/L	0.19 (0.13 - 0.51)	0.07 (0.04 - 0.48)	0.55 (0.35 - 0.71)
Sulphide	mg/L	<0.02 (<0.02 - 0.03)	<0.02 (<0.02 - 0.03)	<0.02 (<0.02 - 0.04)
Aluminium	µg/L	60 (<50 - 160)	51 (<50 - 75)	<50 (<50 - <50)
Cadmium	µg/L	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)
Chromium	µg/L	<1 (<1 - 1)	<1 (<1 - 1)	<1 (<1 - 1)
Copper	µg/L	2 (<1 - 3)	<1 (<1 - 1)	2 (<1 - 2)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - 24)	<10 (<10 - 20)	11 (<10 - 20)
Flow	m^3/s	NM	0.105 (0.027 - 1.190)	NM

Notes:
1. Data presented are in annual medians of monthly samples; except those for faecal coliforms and *E. coli* which are in annual geometric means.
2. Figures in brackets are annual ranges.
3. NM indicates no measurement taken.
4. Values at or below laboratory reporting limits are presented as laboratory reporting limits (see Appendix B).
5. Equal values for annual medians (or geometric means) and ranges indicate that all data are the same as or below laboratory reporting limits.

Summary of water quality monitoring data for Ha Pak Nai Stream, Pak Nai Stream and Sheung Pak Nai Stream in 2022

Parameter	Unit	Ha Pak Nai Stream DB1	Pak Nai Stream DB3	Sheung Pak Nai Stream DB5
Dissolved Oxygen	mg/L	8.2 (7.6 - 10.7)	7.8 (7.2 - 10.1)	8.2 (7.2 - 10.2)
pH		7.3 (6.9 - 7.4)	6.9 (6.3 - 7.1)	7.1 (6.8 - 7.5)
Suspended Solids	mg/L	1.9 (0.7 - 5.8)	2.4 (1.1 - 58.0)	2.6 (<0.5 - 15.0)
5-Day Biochemical Oxygen Demand	mg/L	<0.1 (<0.1 - 2.4)	0.3 (<0.1 - 1.1)	0.3 (<0.1 - 1.3)
Chemical Oxygen Demand	mg/L	2 (<2 - 6)	2 (<2 - 7)	3 (<2 - 8)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
E. coli	counts/ 100 mL	160 (38 - 420)	370 (150 - 3 500)	320 (100 - 3 700)
Faecal Coliforms	counts/ 100 mL	910 (120 - 3 900)	2 500 (470 - 7 300)	3 200 (450 - 48 000)
Ammonia-Nitrogen	mg/L	0.014 (<0.005 - 0.048)	0.021 (0.012 - 0.041)	0.019 (0.008 - 0.058)
Nitrate-Nitrogen	mg/L	0.340 (0.160 - 0.480)	0.230 (0.099 - 0.350)	0.180 (0.058 - 0.280)
Total Kjeldahl Nitrogen	mg/L	0.12 (<0.05 - 0.22)	0.11 (<0.05 - 0.21)	0.13 (0.06 - 0.23)
Orthophosphate Phosphorus	mg/L	0.005 (<0.002 - 0.019)	0.006 (<0.002 - 0.019)	0.005 (0.003 - 0.017)
Total Phosphorus	mg/L	<0.02 (<0.02 - 0.05)	<0.02 (<0.02 - 0.02)	0.02 (<0.02 - 0.04)
Sulphide	mg/L	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)
Aluminium	µg/L	62 (<50 - 120)	<50 (<50 - <50)	<50 (<50 - <50)
Cadmium	µg/L	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)
Chromium	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Copper	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - 1)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - 1)
Zinc	µg/L	<10 (<10 - <10)	<10 (<10 - <10)	<10 (<10 - <10)
Flow	m^3/s	0.042 (0.016 - 0.101)	0.073 (0.017 - 0.397)	0.079 (0.026 - 0.147)

Notes:
1. Data presented are in annual medians of monthly samples; except those for faecal coliforms and *E. coli* which are in annual geometric means.
2. Figures in brackets are annual ranges.
3. NM indicates no measurement taken.
4. Values at or below laboratory reporting limits are presented as laboratory reporting limits (see Appendix B).
5. Equal values for annual medians (or geometric means) and ranges indicate that all data are the same as or below laboratory reporting limits.

Summary of water quality monitoring data for Ngau Hom Sha Stream, Tai Shui Hang Stream and Tsang Kok Stream in 2022

Parameter	Unit	Ngau Hom Sha Stream DB6	Tai Shui Hang Stream DB2	Tsang Kok Stream DB8
Dissolved Oxygen	mg/L	7.7 (7.1 - 9.8)	8.1 (7.3 - 10.5)	8.7 (7.2 - 10.5)
pH		7.1 (6.6 - 7.1)	7.3 (6.8 - 8.3)	7.4 (7.2 - 7.9)
Suspended Solids	mg/L	5.4 (0.9 - 12.0)	3.1 (0.7 - 9.7)	4.7 (1.5 - 24.0)
5-Day Biochemical Oxygen Demand	mg/L	0.6 (<0.1 - 24.0)	0.2 (<0.1 - 2.8)	0.5 (<0.1 - 4.1)
Chemical Oxygen Demand	mg/L	5 (3 - 9)	3 (<2 - 11)	5 (<2 - 25)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
E. coli	counts/ 100 mL	270 (110 - 2 200)	250 (70 - 13 000)	340 (120 - 3 700)
Faecal Coliforms	counts/ 100 mL	2 500 (320 - 6 100)	1 600 (110 - 41 000)	4 000 (400 - 31 000)
Ammonia-Nitrogen	mg/L	0.120 (0.058 - 0.190)	0.017 (0.007 - 0.042)	0.069 (0.031 - 8.700)
Nitrate-Nitrogen	mg/L	0.230 (0.063 - 0.260)	0.250 (0.068 - 0.450)	1.800 (0.520 - 2.900)
Total Kjeldahl Nitrogen	mg/L	0.29 (0.12 - 0.46)	0.14 (<0.05 - 0.42)	0.34 (0.17 - 12.00)
Orthophosphate Phosphorus	mg/L	0.045 (0.015 - 0.120)	0.005 (<0.002 - 0.018)	0.008 (<0.002 - 0.019)
Total Phosphorus	mg/L	0.10 (0.06 - 0.21)	0.02 (<0.02 - 0.04)	<0.02 (<0.02 - 0.06)
Sulphide	mg/L	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - 0.02)
Aluminium	µg/L	<50 (<50 - <50)	<50 (<50 - 70)	<50 (<50 - <50)
Cadmium	µg/L	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)
Chromium	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Copper	µg/L	<1 (<1 - 1)	<1 (<1 - 2)	<1 (<1 - 4)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - 12)	<10 (<10 - <10)	<10 (<10 - 10)
Flow	m^3/s	0.015 (0.000 - 0.044)	0.296 (0.004 - 2.040)	0.018 (0.002 - 0.142)

Notes:
1. Data presented are in annual medians of monthly samples; except those for faecal coliforms and *E. coli* which are in annual geometric means.
2. Figures in brackets are annual ranges.
3. NM indicates no measurement taken.
4. Values at or below laboratory reporting limits are presented as laboratory reporting limits (see Appendix B).
5. Equal values for annual medians (or geometric means) and ranges indicate that all data are the same as or below laboratory reporting limits.

Summary of water quality monitoring data for Mui Wo River in 2022 (Part 1 of 2)

Parameter	Unit	Mui Wo River		
		MW1	MW2	MW3
Dissolved Oxygen	mg/L	8.0 (7.0 - 9.1)	7.9 (6.2 - 11.3)	8.3 (7.5 - 10.1)
pH		7.3 (6.9 - 8.0)	7.3 (7.0 - 7.9)	6.9 (6.4 - 7.3)
Suspended Solids	mg/L	2.1 (1.1 - 6.4)	5.6 (1.3 - 19.0)	1.4 (0.6 - 10.0)
5-Day Biochemical Oxygen Demand	mg/L	0.6 (0.1 - 1.4)	1.2 (0.6 - 5.1)	0.5 (<0.1 - 1.8)
Chemical Oxygen Demand	mg/L	6 (<2 - 14)	12 (8 - 15)	5 (<2 - 11)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
E. coli	counts/ 100 mL	800 (210 - 3 100)	5 100 (1 900 - 14 000)	150 (42 - 800)
Faecal Coliforms	counts/ 100 mL	5 000 (1 200 - 20 000)	16 000 (3 900 - 37 000)	1 700 (230 - 18 000)
Ammonia-Nitrogen	mg/L	0.036 (0.006 - 0.180)	0.410 (0.080 - 1.500)	0.011 (<0.005 - 0.033)
Nitrate-Nitrogen	mg/L	0.325 (0.002 - 0.670)	0.300 (0.130 - 0.880)	0.260 (0.012 - 0.740)
Total Kjeldahl Nitrogen	mg/L	0.23 (0.09 - 0.36)	0.74 (0.29 - 2.00)	0.08 (<0.05 - 0.30)
Orthophosphate Phosphorus	mg/L	0.059 (0.016 - 0.110)	0.034 (0.003 - 0.160)	0.045 (0.005 - 0.074)
Total Phosphorus	mg/L	0.08 (0.04 - 0.13)	0.11 (0.06 - 0.22)	0.06 (<0.02 - 0.13)
Sulphide	mg/L	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)
Aluminium	µg/L	<50 (<50 - <50)	<50 (<50 - 120)	<50 (<50 - <50)
Cadmium	µg/L	<0.1 (<0.1 - 0.2)	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)
Chromium	µg/L	<1 (<1 - 2)	<1 (<1 - 2)	<1 (<1 - <1)
Copper	µg/L	<1 (<1 - 5)	1 (<1 - 6)	<1 (<1 - <1)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - 15)	<10 (<10 - 14)	<10 (<10 - 12)
Flow	m^3/s	0.092 (0.036 - 1.232)	NM	0.037 (0.013 - 1.071)

Notes:
1. Data presented are in annual medians of monthly samples; except those for faecal coliforms and *E. coli* which are in annual geometric means.
2. Figures in brackets are annual ranges.
3. NM indicates no measurement taken.
4. Values at or below laboratory reporting limits are presented as laboratory reporting limits (see Appendix B).
5. Equal values for annual medians (or geometric means) and ranges indicate that all data are the same as or below laboratory reporting limits.

Summary of water quality monitoring data for Mui Wo River in 2022 (Part 2 of 2)

Parameter	Unit	Mui Wo River	
		MW4	MW5
Dissolved Oxygen	mg/L	7.3 (5.5 - 8.0)	7.8 (6.4 - 9.6)
pH		7.0 (6.5 - 8.0)	7.2 (6.9 - 7.7)
Suspended Solids	mg/L	4.6 (2.7 - 36.0)	3.9 (2.7 - 8.5)
5-Day Biochemical Oxygen Demand	mg/L	1.2 (0.2 - 4.9)	1.1 (0.4 - 3.3)
Chemical Oxygen Demand	mg/L	12 (4 - 16)	8 (4 - 19)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
E. coli	counts/ 100 mL	470 (80 - 8 500)	2 100 (590 - 11 000)
Faecal Coliforms	counts/ 100 mL	1 900 (180 - 76 000)	7 200 (1 600 - 35 000)
Ammonia-Nitrogen	mg/L	0.230 (0.069 - 0.540)	0.130 (0.043 - 0.250)
Nitrate-Nitrogen	mg/L	0.300 (0.170 - 0.790)	0.170 (0.031 - 0.390)
Total Kjeldahl Nitrogen	mg/L	0.47 (0.16 - 0.72)	0.38 (0.12 - 0.45)
Orthophosphate Phosphorus	mg/L	0.047 (<0.002 - 0.100)	0.023 (0.007 - 0.069)
Total Phosphorus	mg/L	0.11 (0.05 - 0.16)	0.07 (0.03 - 0.12)
Sulphide	mg/L	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)
Aluminium	µg/L	<50 (<50 - <50)	<50 (<50 - 60)
Cadmium	µg/L	<0.1 (<0.1 - 0.2)	<0.1 (<0.1 - <0.1)
Chromium	µg/L	2 (<1 - 2)	<1 (<1 - 1)
Copper	µg/L	2 (<1 - 7)	<1 (<1 - 5)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	11 (<10 - 33)	<10 (<10 - 17)
Flow	m^3/s	0.099 (0.048 - 0.809)	0.088 (0.008 - 0.461)

Notes:
1. Data presented are in annual medians of monthly samples; except those for faecal coliforms and *E. coli* which are in annual geometric means.
2. Figures in brackets are annual ranges.
3. NM indicates no measurement taken.
4. Values at or below laboratory reporting limits are presented as laboratory reporting limits (see Appendix B).
5. Equal values for annual medians (or geometric means) and ranges indicate that all data are the same as or below laboratory reporting limits.

Summary of water quality monitoring data for Tung Chung River in 2022

Parameter	Unit	Tung Chung River		
		TC1	TC2	TC3
Dissolved Oxygen	mg/L	7.8 (7.5 - 9.0)	8.2 (7.9 - 9.8)	8.2 (7.7 - 8.8)
pH		7.1 (6.7 - 7.5)	7.8 (7.3 - 9.0)	7.9 (7.1 - 8.7)
Suspended Solids	mg/L	1.5 (<0.5 - 2.7)	2.6 (0.7 - 13.0)	1.8 (0.9 - 12.0)
5-Day Biochemical Oxygen Demand	mg/L	0.3 (<0.1 - 1.4)	1.0 (0.3 - 6.0)	5.7 (0.9 - 11.0)
Chemical Oxygen Demand	mg/L	6 (<2 - 12)	7 (3 - 15)	10 (2 - 20)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
E. coli	counts/ 100 mL	140 (19 - 1 500)	580 (79 - 1 900)	23 000 (2 200 - 98 000)
Faecal Coliforms	counts/ 100 mL	1 200 (180 - 16 000)	2 100 (460 - 15 000)	52 000 (9 900 - 240 000)
Ammonia-Nitrogen	mg/L	0.013 (<0.005 - 0.042)	0.066 (0.014 - 0.210)	1.400 (0.130 - 3.700)
Nitrate-Nitrogen	mg/L	0.053 (0.010 - 0.280)	0.130 (0.002 - 0.470)	0.150 (0.086 - 0.590)
Total Kjeldahl Nitrogen	mg/L	0.12 (<0.05 - 0.23)	0.31 (0.09 - 0.57)	1.80 (0.21 - 4.70)
Orthophosphate Phosphorus	mg/L	0.006 (<0.002 - 0.018)	0.010 (0.005 - 0.034)	0.099 (0.004 - 0.250)
Total Phosphorus	mg/L	<0.02 (<0.02 - 0.03)	0.04 (<0.02 - 0.07)	0.17 (<0.02 - 0.34)
Sulphide	mg/L	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - 0.03)
Aluminium	µg/L	<50 (<50 - <50)	<50 (<50 - <50)	<50 (<50 - 101)
Cadmium	µg/L	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)
Chromium	µg/L	<1 (<1 - <1)	<1 (<1 - 1)	<1 (<1 - <1)
Copper	µg/L	<1 (<1 - <1)	<1 (<1 - 3)	<1 (<1 - 2)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - 20)	<10 (<10 - <10)	<10 (<10 - 11)
Flow	m^3/s	0.230 (0.008 - 0.876)	0.164 (0.050 - 1.056)	0.042 (0.020 - 0.333)

Notes:
1. Data presented are in annual medians of monthly samples; except those for faecal coliforms and *E. coli* which are in annual geometric means.
2. Figures in brackets are annual ranges.
3. NM indicates no measurement taken.
4. Values at or below laboratory reporting limits are presented as laboratory reporting limits (see Appendix B).
5. Equal values for annual medians (or geometric means) and ranges indicate that all data are the same as or below laboratory reporting limits.

Summary of water quality monitoring data for Tuen Mun River in 2022 (Part 1 of 2)

Parameter	Unit	Tuen Mun River		
		TN1	TN2	TN3
Dissolved Oxygen	mg/L	5.3 (3.0 - 9.6)	8.3 (7.1 - 10.7)	5.0 (1.9 - 9.5)
pH		7.6 (7.4 - 7.7)	8.9 (7.4 - 10.9)	7.6 (7.3 - 8.4)
Suspended Solids	mg/L	6.8 (4.3 - 34.0)	4.8 (1.7 - 310.0)	5.6 (2.5 - 30.0)
5-Day Biochemical Oxygen Demand	mg/L	17.0 (8.5 - 41.0)	2.6 (0.8 - 30.0)	3.9 (0.7 - 11.0)
Chemical Oxygen Demand	mg/L	32 (17 - 68)	12 (5 - 34)	12 (8 - 37)
Oil & Grease	mg/L	0.8 (<0.5 - 1.6)	<0.5 (<0.5 - 1.2)	<0.5 (<0.5 - <0.5)
E. coli	counts/ 100 mL	95 000 (65 000 - 130 000)	26 000 (260 - 330 000)	12 000 (360 - 140 000)
Faecal Coliforms	counts/ 100 mL	300 000 (180 000 - 550 000)	49 000 (1 600 - 490 000)	49 000 (1 800 - 310 000)
Ammonia-Nitrogen	mg/L	5.800 (2.700 - 8.100)	0.760 (0.220 - 6.000)	0.680 (0.290 - 0.780)
Nitrate-Nitrogen	mg/L	0.530 (0.005 - 1.300)	1.000 (0.110 - 2.000)	0.380 (0.056 - 0.990)
Total Kjeldahl Nitrogen	mg/L	7.70 (3.90 - 11.00)	1.20 (0.69 - 8.70)	1.30 (0.39 - 2.20)
Orthophosphate Phosphorus	mg/L	0.470 (0.260 - 0.590)	0.071 (0.011 - 0.530)	0.016 (<0.002 - 0.090)
Total Phosphorus	mg/L	0.75 (0.44 - 0.88)	0.18 (0.09 - 0.68)	0.15 (0.08 - 0.25)
Sulphide	mg/L	0.02 (<0.02 - 0.05)	<0.02 (<0.02 - 0.04)	<0.02 (<0.02 - 0.03)
Aluminium	µg/L	<50 (<50 - <50)	132 (<50 - 770)	<50 (<50 - 200)
Cadmium	µg/L	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)
Chromium	µg/L	<1 (<1 - <1)	2 (<1 - 12)	1 (<1 - 2)
Copper	µg/L	2 (1 - 2)	1 (<1 - 2)	2 (<1 - 4)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	10 (<10 - 34)	<10 (<10 - 21)	<10 (<10 - 15)
Flow	m^3/s	0.295 (0.016 - 1.467)	0.041 (0.006 - 0.260)	NM

Notes:
1. Data presented are in annual medians of monthly samples; except those for faecal coliforms and *E. coli* which are in annual geometric means.
2. Figures in brackets are annual ranges.
3. NM indicates no measurement taken.
4. Values at or below laboratory reporting limits are presented as laboratory reporting limits (see Appendix B).
5. Equal values for annual medians (or geometric means) and ranges indicate that all data are the same as or below laboratory reporting limits.

Summary of water quality monitoring data for Tuen Mun River in 2022 (Part 2 of 2)

Parameter	Unit	Tuen Mun River		
		TN4	TN5	TN6
Dissolved Oxygen	mg/L	5.9 (1.5 - 10.1)	5.4 (2.2 - 9.7)	4.8 (2.5 - 7.0)
pH		7.7 (7.3 - 8.9)	7.6 (7.3 - 8.5)	7.7 (7.2 - 8.0)
Suspended Solids	mg/L	8.6 (3.9 - 49.0)	5.4 (3.7 - 24.0)	4.7 (2.6 - 46.0)
5-Day Biochemical Oxygen Demand	mg/L	3.2 (0.8 - 6.8)	3.3 (1.5 - 12.0)	3.6 (0.8 - 5.0)
Chemical Oxygen Demand	mg/L	13 (8 - 41)	14 (7 - 32)	13 (8 - 24)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
E. coli	counts/ 100 mL	19 000 (800 - 320 000)	12 000 (900 - 160 000)	9 400 (200 - 63 000)
Faecal Coliforms	counts/ 100 mL	89 000 (4 700 - 860 000)	49 000 (4 800 - 600 000)	38 000 (1 800 - 390 000)
Ammonia-Nitrogen	mg/L	0.600 (0.290 - 0.800)	0.610 (0.310 - 0.800)	0.465 (0.210 - 1.100)
Nitrate-Nitrogen	mg/L	0.530 (0.005 - 0.940)	0.410 (0.012 - 0.940)	0.335 (0.110 - 0.960)
Total Kjeldahl Nitrogen	mg/L	1.30 (0.54 - 1.90)	1.20 (0.59 - 1.80)	1.10 (0.34 - 1.80)
Orthophosphate Phosphorus	mg/L	0.006 (<0.002 - 0.100)	0.014 (<0.002 - 0.083)	0.019 (<0.002 - 0.057)
Total Phosphorus	mg/L	0.13 (0.06 - 0.30)	0.11 (0.06 - 0.18)	0.11 (0.06 - 0.35)
Sulphide	mg/L	<0.02 (<0.02 - 1.11)	<0.02 (<0.02 - 0.04)	<0.02 (<0.02 - <0.02)
Aluminium	µg/L	53 (<50 - 320)	62 (<50 - 220)	<50 (<50 - 170)
Cadmium	µg/L	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)
Chromium	µg/L	<1 (<1 - 2)	<1 (<1 - 3)	1 (<1 - 2)
Copper	µg/L	2 (<1 - 4)	2 (<1 - 7)	3 (<1 - 5)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - 18)	<10 (<10 - 15)	10 (<10 - 22)
Flow	m^3/s	NM	NM	NM

Notes:
1. Data presented are in annual medians of monthly samples; except those for faecal coliforms and *E. coli* which are in annual geometric means.
2. Figures in brackets are annual ranges.
3. NM indicates no measurement taken.
4. Values at or below laboratory reporting limits are presented as laboratory reporting limits (see Appendix B).
5. Equal values for annual medians (or geometric means) and ranges indicate that all data are the same as or below laboratory reporting limits.

Summary of water quality monitoring data for Pai Min Kok (Anglers') Stream and Kau Wa Keng Stream in 2022

Parameter	Unit	Pai Min Kok (Anglers') Stream		Kau Wa Keng Stream
		AN1	AN2	KW3
Dissolved Oxygen	mg/L	8.5 (7.9 - 10.2)	8.4 (7.8 - 10.4)	8.2 (7.6 - 10.0)
pH		7.8 (7.7 - 8.1)	7.8 (7.3 - 8.2)	7.1 (7.0 - 7.5)
Suspended Solids	mg/L	2.6 (1.3 - 24.0)	2.0 (0.7 - 7.4)	3.3 (1.0 - 7.2)
5-Day Biochemical Oxygen Demand	mg/L	1.0 (<0.1 - 9.6)	0.2 (<0.1 - 6.5)	2.4 (1.1 - 8.1)
Chemical Oxygen Demand	mg/L	8 (4 - 60)	5 (<2 - 16)	10 (5 - 34)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
E. coli	counts/ 100 mL	20 000 (3 000 - 260 000)	9 300 (700 - 350 000)	65 000 (8 000 - 420 000)
Faecal Coliforms	counts/ 100 mL	38 000 (5 700 - 410 000)	18 000 (3 900 - 360 000)	100 000 (23 000 - 520 000)
Ammonia-Nitrogen	mg/L	0.059 (0.010 - 2.700)	0.016 (0.006 - 0.025)	0.770 (0.190 - 2.900)
Nitrate-Nitrogen	mg/L	0.540 (0.330 - 1.700)	0.210 (0.043 - 0.690)	2.500 (1.600 - 4.200)
Total Kjeldahl Nitrogen	mg/L	0.43 (0.11 - 4.40)	0.18 (0.05 - 0.40)	1.20 (0.48 - 4.60)
Orthophosphate Phosphorus	mg/L	0.032 (0.007 - 0.140)	0.015 (0.004 - 0.029)	0.036 (<0.002 - 0.190)
Total Phosphorus	mg/L	0.06 (0.05 - 0.33)	0.04 (0.03 - 0.07)	0.11 (0.07 - 0.28)
Sulphide	mg/L	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - 0.04)
Aluminium	µg/L	<50 (<50 - 740)	<50 (<50 - 120)	<50 (<50 - <50)
Cadmium	µg/L	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)	2.1 (0.5 - 4.3)
Chromium	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - 2)
Copper	µg/L	2 (1 - 8)	<1 (<1 - 2)	2 (1 - 4)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - 30)	10 (<10 - 17)	199 (100 - 373)
Flow	m^3/s	NM	0.004 (0.002 - 0.012)	0.008 (0.003 - 0.044)

Notes:
1. Data presented are in annual medians of monthly samples; except those for faecal coliforms and *E. coli* which are in annual geometric means.
2. Figures in brackets are annual ranges.
3. NM indicates no measurement taken.
4. Values at or below laboratory reporting limits are presented as laboratory reporting limits (see Appendix B).
5. Equal values for annual medians (or geometric means) and ranges indicate that all data are the same as or below laboratory reporting limits.

Summary of water quality monitoring data for Sam Dip Tam Stream in 2022

Parameter	Unit	Sam Dip Tam Stream		
		TW1	TW2	TW3
Dissolved Oxygen	mg/L	7.9 (7.5 - 9.6)	8.5 (7.8 - 10.2)	8.7 (7.8 - 9.9)
pH		7.8 (7.5 - 7.8)	8.0 (7.9 - 8.3)	7.9 (7.0 - 8.3)
Suspended Solids	mg/L	1.8 (0.6 - 5.1)	1.6 (1.4 - 4.0)	2.5 (1.0 - 9.4)
5-Day Biochemical Oxygen Demand	mg/L	0.8 (<0.1 - 5.7)	1.2 (0.7 - 5.1)	1.7 (0.3 - 3.8)
Chemical Oxygen Demand	mg/L	5 (<2 - 11)	5 (3 - 15)	8 (4 - 22)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
E. coli	counts/ 100 mL	920 (180 - 10 000)	3 400 (980 - 12 000)	6 700 (1 700 - 29 000)
Faecal Coliforms	counts/ 100 mL	22 000 (2 200 - 1 000 000)	11 000 (1 600 - 130 000)	17 000 (5 000 - 92 000)
Ammonia-Nitrogen	mg/L	0.012 (0.006 - 0.032)	0.170 (0.092 - 0.230)	0.130 (0.022 - 0.530)
Nitrate-Nitrogen	mg/L	0.620 (0.300 - 0.980)	1.100 (0.420 - 1.300)	1.150 (0.570 - 1.500)
Total Kjeldahl Nitrogen	mg/L	0.15 (<0.05 - 0.50)	0.33 (0.19 - 0.67)	0.40 (0.05 - 1.10)
Orthophosphate Phosphorus	mg/L	0.034 (0.013 - 0.050)	0.088 (0.070 - 0.140)	0.100 (0.068 - 0.180)
Total Phosphorus	mg/L	0.05 (0.04 - 0.18)	0.13 (0.10 - 0.17)	0.14 (0.11 - 0.24)
Sulphide	mg/L	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)
Aluminium	µg/L	<50 (<50 - <50)	<50 (<50 - <50)	<50 (<50 - 351)
Cadmium	µg/L	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)
Chromium	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Copper	µg/L	<1 (<1 - 2)	1 (<1 - 2)	1 (<1 - 3)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - <10)	<10 (<10 - <10)	<10 (<10 - 20)
Flow	m^3/s	NM	0.090 (0.008 - 0.175)	NM

Notes:
1. Data presented are in annual medians of monthly samples; except those for faecal coliforms and *E. coli* which are in annual geometric means.
2. Figures in brackets are annual ranges.
3. NM indicates no measurement taken.
4. Values at or below laboratory reporting limits are presented as laboratory reporting limits (see Appendix B).
5. Equal values for annual medians (or geometric means) and ranges indicate that all data are the same as or below laboratory reporting limits.

Summary of water quality monitoring data for Kai Tak River in 2022 (Part 1 of 2)

Parameter	Unit	Kai Tak River		
		KN1	KN2	KN3
Dissolved Oxygen	mg/L	3.9 (2.8 - 6.7)	5.7 (4.6 - 7.7)	6.3 (6.0 - 8.0)
pH		7.3 (7.1 - 7.5)	7.3 (7.2 - 7.4)	7.3 (7.3 - 7.5)
Suspended Solids	mg/L	2.9 (0.9 - 5.7)	3.5 (1.2 - 7.7)	4.6 (2.9 - 11.0)
5-Day Biochemical Oxygen Demand	mg/L	1.6 (0.8 - 8.4)	3.1 (2.5 - 4.9)	4.8 (2.6 - 5.9)
Chemical Oxygen Demand	mg/L	22 (13 - 43)	33 (11 - 41)	27 (16 - 53)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
E. coli	counts/ 100 mL	32 000 (1 200 - 140 000)	4 800 (1 100 - 33 000)	6 400 (1 400 - 31 000)
Faecal Coliforms	counts/ 100 mL	88 000 (2 200 - 430 000)	12 000 (3 400 - 79 000)	15 000 (3 000 - 120 000)
Ammonia-Nitrogen	mg/L	2.900 (1.600 - 5.000)	2.900 (1.300 - 6.800)	2.500 (0.950 - 5.900)
Nitrate-Nitrogen	mg/L	2.400 (1.700 - 4.000)	3.700 (2.400 - 4.800)	4.200 (2.700 - 5.400)
Total Kjeldahl Nitrogen	mg/L	3.60 (2.10 - 6.40)	3.80 (2.00 - 7.30)	3.60 (1.50 - 7.00)
Orthophosphate Phosphorus	mg/L	0.740 (0.520 - 1.900)	0.950 (0.340 - 3.200)	0.830 (0.320 - 2.800)
Total Phosphorus	mg/L	0.85 (0.69 - 2.00)	1.10 (0.55 - 3.30)	1.10 (0.49 - 3.00)
Sulphide	mg/L	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)
Aluminium	µg/L	<50 (<50 - <50)	<50 (<50 - <50)	<50 (<50 - <50)
Cadmium	µg/L	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)
Chromium	µg/L	2 (<1 - 2)	1 (<1 - 2)	1 (<1 - 2)
Copper	µg/L	3 (2 - 4)	2 (2 - 8)	2 (2 - 5)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	18 (10 - 130)	20 (10 - 22)	19 (10 - 21)
Flow	m^3/s	NM	NM	NM

Notes:
1. Data presented are in annual medians of monthly samples; except those for faecal coliforms and *E. coli* which are in annual geometric means.
2. Figures in brackets are annual ranges.
3. NM indicates no measurement taken.
4. Values at or below laboratory reporting limits are presented as laboratory reporting limits (see Appendix B).
5. Equal values for annual medians (or geometric means) and ranges indicate that all data are the same as or below laboratory reporting limits.

Summary of water quality monitoring data for Kai Tak River in 2022 (Part 2 of 2)

Parameter	Unit	Kai Tak River		
		KN4	KN5	KN7
Dissolved Oxygen	mg/L	6.7 (6.4 - 8.3)	7.1 (6.5 - 8.7)	7.1 (6.7 - 8.8)
pH		7.3 (7.2 - 7.4)	7.2 (7.1 - 7.3)	7.2 (7.1 - 7.3)
Suspended Solids	mg/L	5.6 (2.1 - 8.6)	7.4 (2.0 - 11.0)	6.1 (2.4 - 12.0)
5-Day Biochemical Oxygen Demand	mg/L	5.3 (3.5 - 9.3)	5.4 (3.3 - 11.0)	6.0 (4.1 - 12.0)
Chemical Oxygen Demand	mg/L	33 (18 - 37)	33 (19 - 41)	33 (17 - 43)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
E. coli	counts/ 100 mL	6 500 (2 200 - 20 000)	7 300 (1 900 - 62 000)	3 100 (1 100 - 9 000)
Faecal Coliforms	counts/ 100 mL	16 000 (5 300 - 57 000)	18 000 (4 000 - 460 000)	7 600 (3 000 - 55 000)
Ammonia-Nitrogen	mg/L	1.600 (0.510 - 4.900)	1.100 (0.370 - 4.500)	1.200 (0.380 - 4.700)
Nitrate-Nitrogen	mg/L	4.200 (3.200 - 5.200)	4.100 (3.400 - 5.300)	4.200 (3.200 - 5.200)
Total Kjeldahl Nitrogen	mg/L	3.30 (1.20 - 5.80)	2.70 (1.30 - 5.70)	2.30 (1.20 - 6.10)
Orthophosphate Phosphorus	mg/L	0.700 (0.310 - 2.100)	0.670 (0.230 - 2.100)	0.640 (0.240 - 2.200)
Total Phosphorus	mg/L	1.00 (0.51 - 2.30)	0.91 (0.57 - 2.30)	0.90 (0.46 - 2.30)
Sulphide	mg/L	<0.02 (<0.02 - 0.05)	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)
Aluminium	µg/L	<50 (<50 - <50)	<50 (<50 - <50)	<50 (<50 - <50)
Cadmium	µg/L	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)
Chromium	µg/L	1 (<1 - 2)	1 (<1 - 2)	1 (<1 - 2)
Copper	µg/L	2 (2 - 5)	2 (2 - 6)	2 (2 - 5)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	20 (10 - 22)	17 (10 - 22)	20 (10 - 80)
Flow	m^3/s	NM	10.322 (6.120 - 12.750)	1.960 (1.375 - 2.728)

Notes:
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5. Equal values for annual medians (or geometric means) and ranges indicate that all data are the same as or below laboratory reporting limits.

WQO compliance rates for rivers and streams in 2022

Watercourse	Water Quality Objectives (WQOs)					
	pH	5-Day Biochemical Oxygen Demand	Chemical Oxygen Demand	Dissolved Oxygen	Suspended Solids*	Overall Compliance Rate (%)
Eastern New Territories						
Shing Mun River	77%	92%	99%	100%	100%	**94%**
Lam Tsuen River	96%	94%	95%	99%	100%	**97%**
Tai Po River	100%	83%	100%	100%	100%	**97%**
Tai Po Kau Stream	100%	100%	100%	100%	100%	**100%**
Shan Liu Stream	100%	92%	100%	100%	100%	**98%**
Tung Tze Stream	100%	92%	92%	100%	100%	**97%**
Ho Chung River	100%	96%	100%	100%	100%	**99%**
Sha Kok Mei Stream	100%	82%	91%	100%	100%	**95%**
Tai Chung Hau Stream	82%	86%	91%	100%	100%	**92%**
Tseng Lan Shue Stream	100%	55%	97%	94%	100%	**89%**
Northwestern New Territories						
River Indus	100%	53%	69%	97%	100%	**84%**
River Beas	100%	36%	83%	100%	100%	**84%**
River Ganges	100%	51%	57%	100%	100%	**82%**
Yuen Long Creek	96%	2%	15%	61%	75%	**50%**
Kam Tin River	100%	0%	22%	56%	50%	**46%**
Tin Shui Wai Nullah	82%	77%	95%	95%	100%	**90%**
Fairview Park Nullah	100%	0%	55%	91%	100%	**69%**
Ha Pak Nai Stream	100%	100%	100%	100%	100%	**100%**
Tai Shui Hang Stream	100%	100%	100%	100%	100%	**100%**
Pak Nai Stream	100%	100%	100%	100%	100%	**100%**
Sheung Pak Nai Stream	100%	100%	100%	100%	100%	**100%**
Ngau Hom Sha Stream	100%	82%	100%	100%	100%	**96%**
Tsang Kok Stream	100%	100%	100%	100%	100%	**100%**
Lantau Island						
Mui Wo River	98%	98%	100%	100%	100%	**99%**
Tung Chung River	97%	79%	100%	100%	100%	**95%**
Southwestern New Territories and Kowloon						
Tuen Mun River	91%	61%	79%	78%	100%	**82%**
Pai Min Kok (Anglers') Stream	100%	86%	95%	100%	100%	**96%**
Kau Wa Keng Stream	100%	73%	91%	100%	100%	**93%**
Sam Dip Tam Stream	100%	94%	100%	100%	100%	**99%**
Kai Tak River	100%	61%	48%	91%	100%	**80%**
Average Compliance (All monitoring stations)	**95%**	**73%**	**83%**	**94%**	**98%**	**88%**

* The WQO compliance for suspended solids is based on annual median value, while WQO compliance for other parameters is based on individual measurements.

Water Quality Index (WQI) for rivers and streams in Hong Kong

Water Quality Index (WQI) is a numerical value used to gauge and denote, based on monitoring data, the overall state of health of rivers and streams. It is relevant for conserving the primary beneficial use of rivers and streams to support aquatic life. WQI is calculated based on three key water quality parameters: dissolved oxygen, BOD_5 and ammonia-nitrogen levels. The contribution of these parameters to formulate WQI are evaluated using the calculation method shown in the table below:

Calculation of WQI

No. of points awarded	Dissolved Oxygen (% saturation)	BOD_5 (mg/L)	Ammonia-Nitrogen (mg/L)
1	91 – 110	< 3	< 0.5
2	71 – 90 111 – 120	3.1 – 6.0	0.5 – 1.0
3	51 – 70 121 – 130	6.1 – 9.0	1.1 – 2.0
4	31 – 50	9.1 – 15.0	2.1 – 5.0
5	< 30 or > 130	> 15.0	> 5.0

All parameters carry equal weighting, and the monthly WQI is the sum of points converted from these three parameters. The annual WQI of a river monitoring station is the average of all monthly WQI values recorded in the year. The WQI values range from 3 to 15, corresponding to the following gradings of river water quality conditions:

WQI gradings

WQI	River water quality condition
3.0 – 4.5	Excellent
4.6 – 7.5	Good
7.6 – 10.5	Fair
10.6 – 13.5	Bad
13.6 – 15.0	Very Bad