

RIVER WATER QUALITY IN HONG KONG IN 2023



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.



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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
Environmental Protection Department	EPD / 環保署	環境保護署
<i>Escherichia coli</i>	<i>E. coli</i>	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 2023. 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 2023

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)

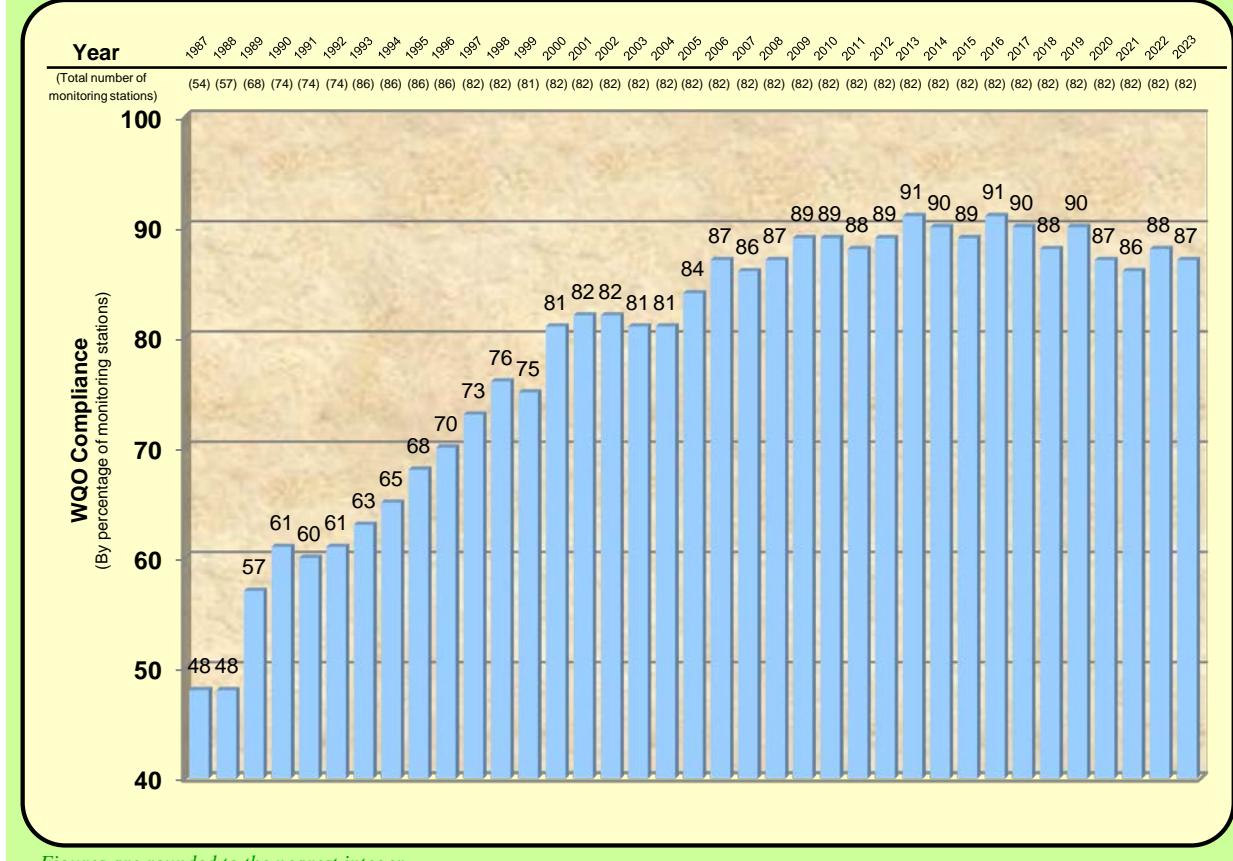
Five key parameters, including pH, suspended solids (SS), dissolved oxygen (DO), 5-day biochemical oxygen demand (BOD_5) and chemical oxygen demand (COD), are used to assess compliance with the WQOs applicable for individual monitoring stations in various Water Control Zones (WCZ) (Appendix C and Appendix 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 2023 continued to be satisfactory with an overall WQO compliance rate¹ of 87% which is generally within 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 steady and good in 2023. A long-term improvement trend has been generally maintained 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.

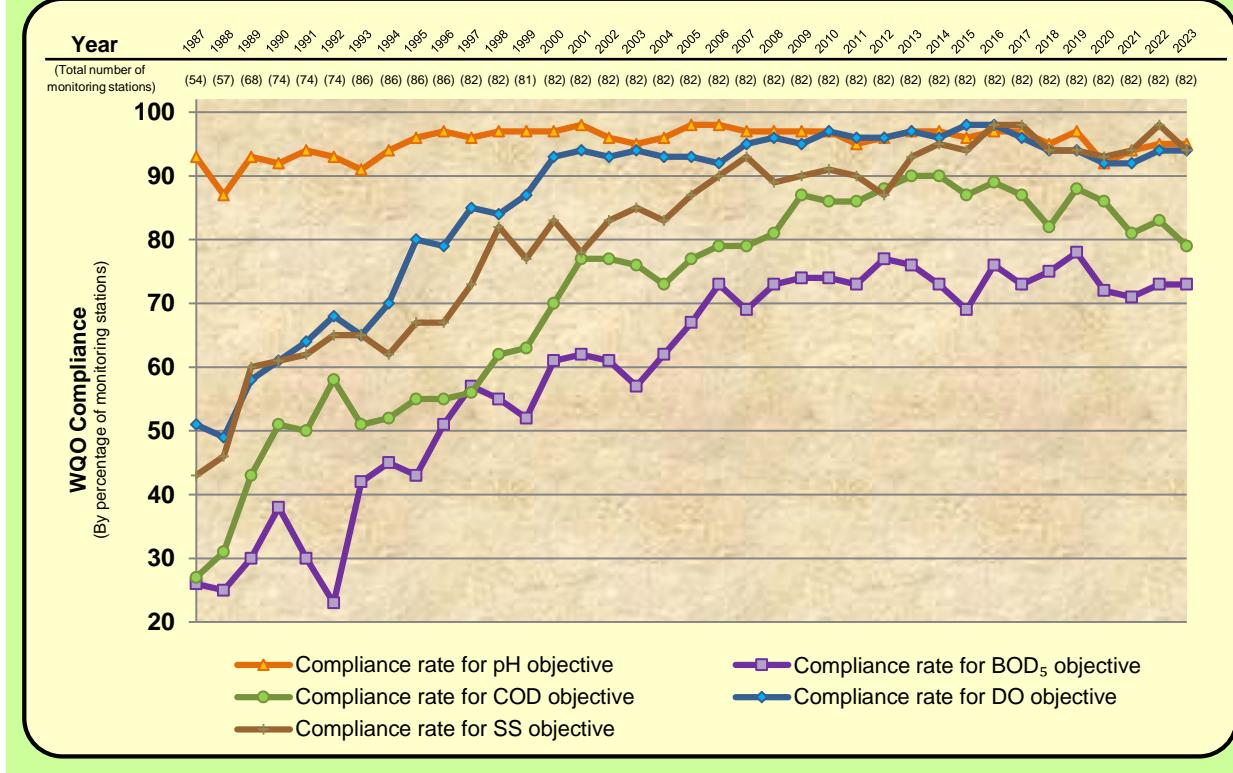
¹ For rivers that have more than one monitoring stations, the WQO compliance rate is expressed as an average of the annual compliance rates of all their individual monitoring stations. Similarly, the overall WQO compliance rate for Hong Kong's river water quality is the overall average rate for all the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

Figure 1. Overall WQO compliance rates for Hong Kong's rivers, 1987-2023



Figures are rounded to the nearest integer

Figure 2. Compliance rates for five key WQO parameters, 1987-2023



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 state of health of a river (Appendix G). In 2023, 79% 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 2023, while 54% stations in these two gradings were recorded in 1987. Among the current 82 monitoring stations, small changes in WQI gradings for 6 stations in 2023 were observed, and these are generally within the normal range of the fluctuations observed in recent years (Figure 3). The distribution of the river monitoring stations and their WQI gradings in 2023 as compared with those of 1987 are shown in Figures 4 and 5, respectively.

Figure 3. Overall WQI gradings for Hong Kong’s rivers, 1987-2023

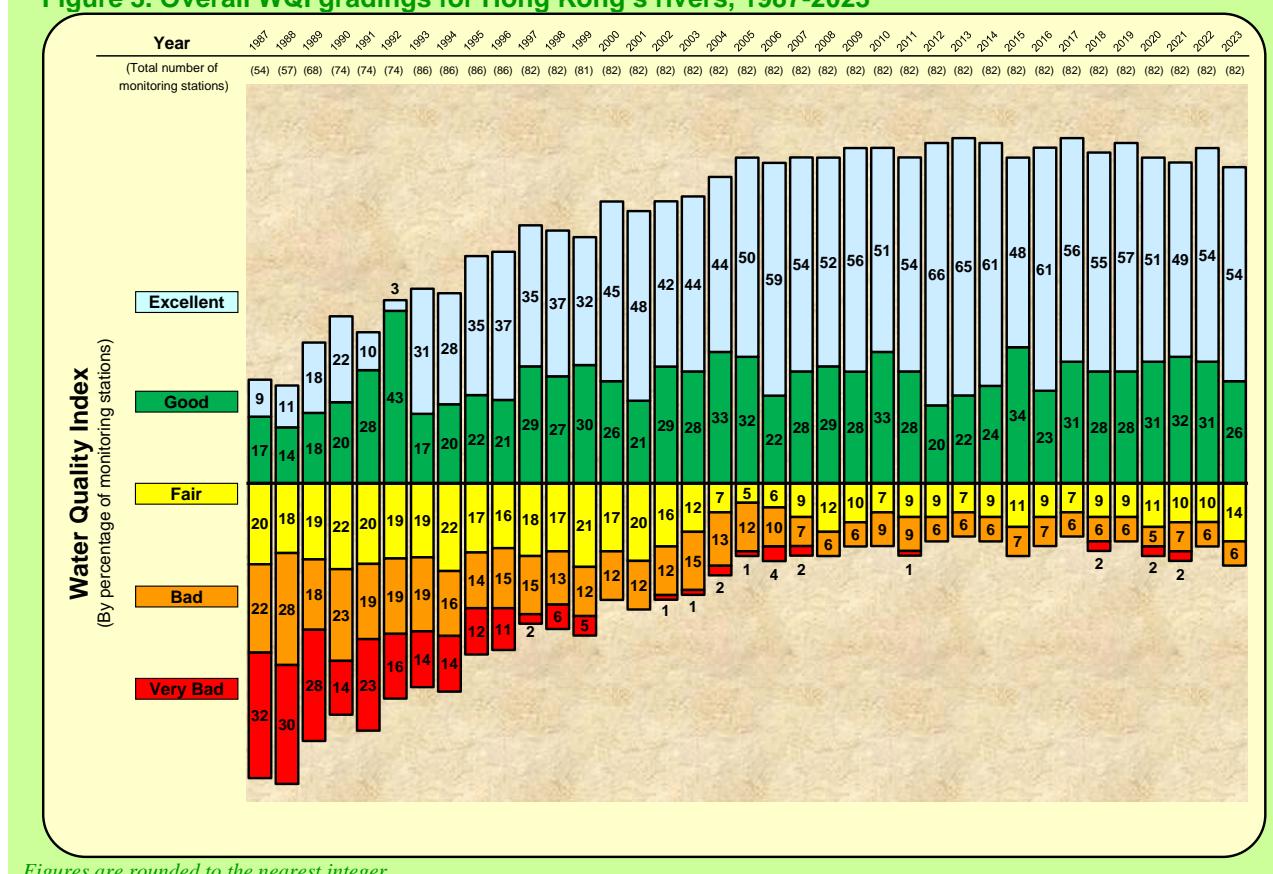


Figure 4. Map of river monitoring stations and their WQI gradings in 2023

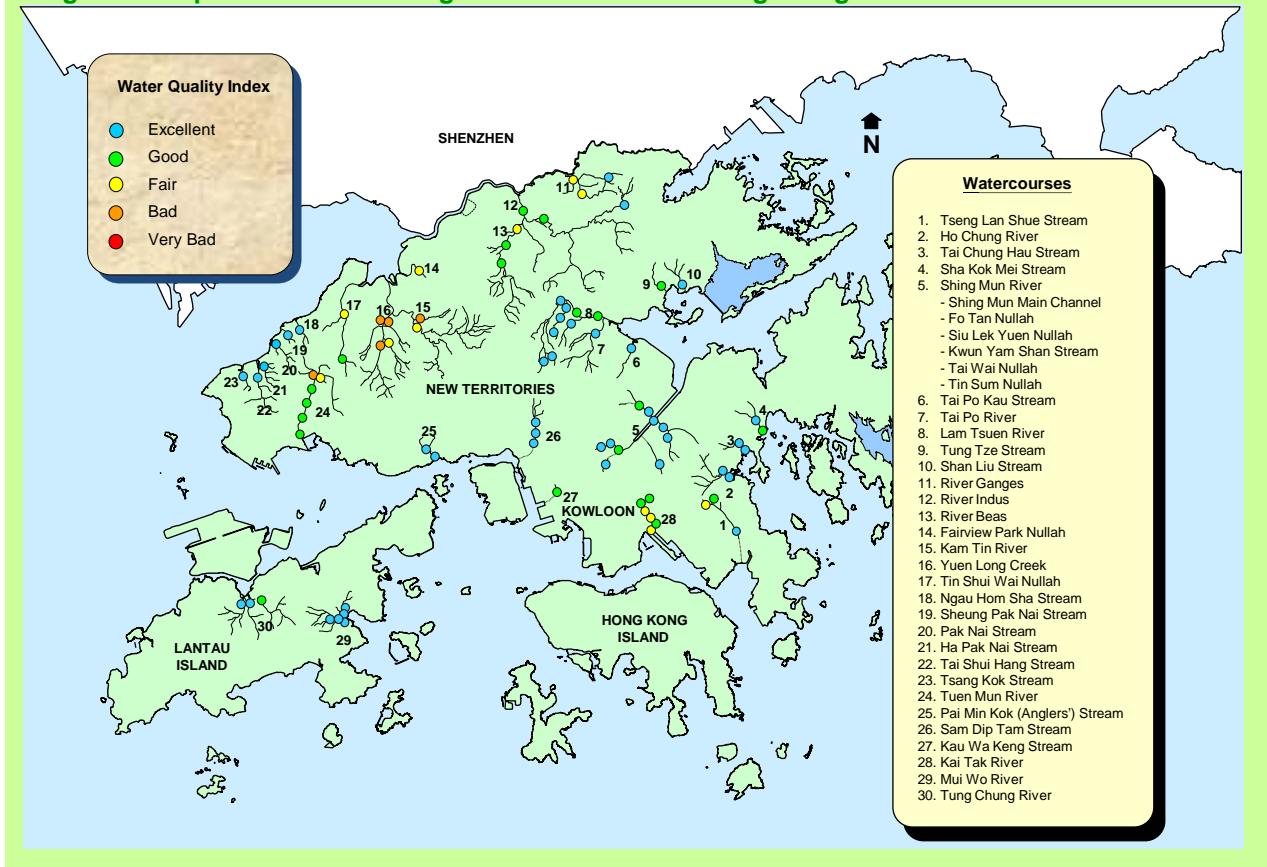
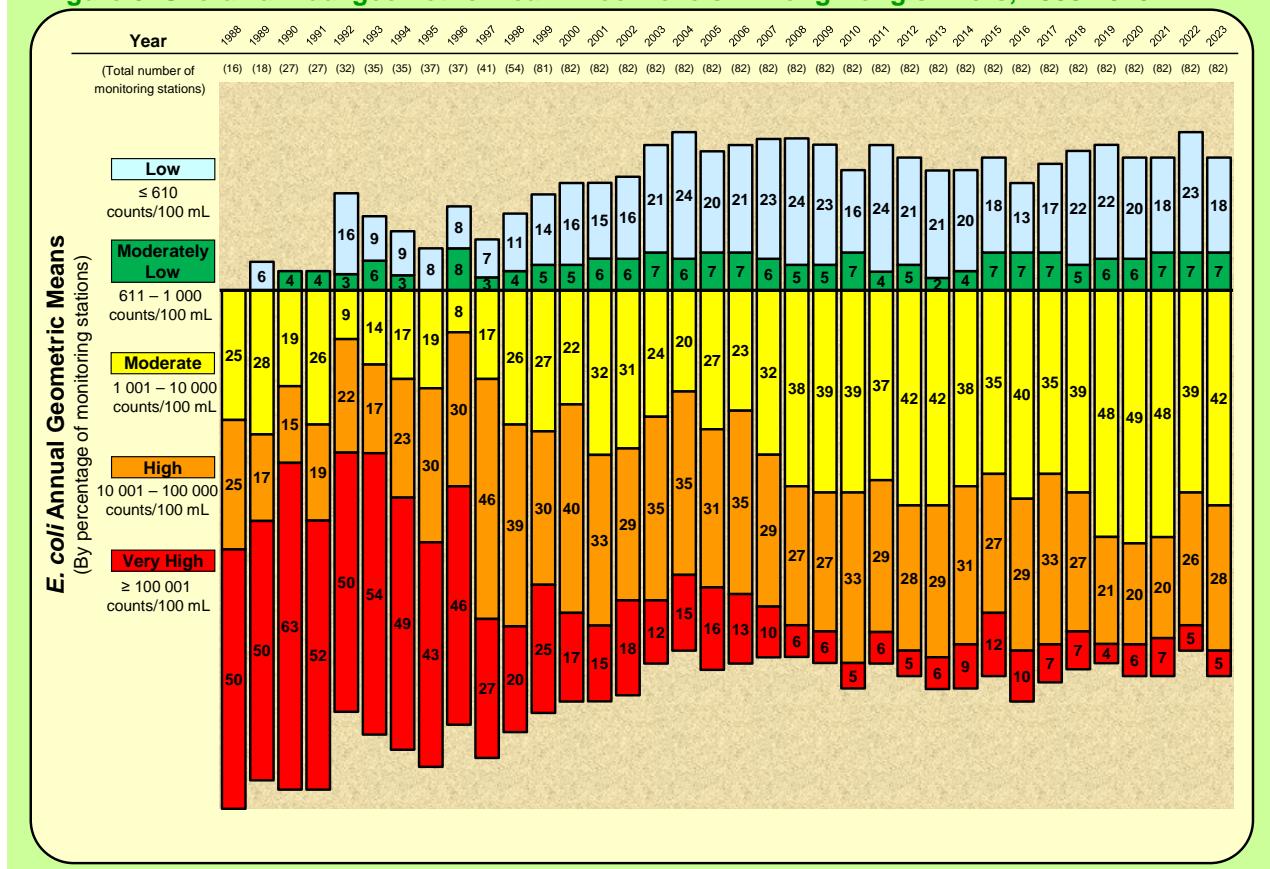


Figure 5. Map of river monitoring stations and their WQI gradings in 1987



In 2023, 25% of the monitoring stations had “Low” or “Moderately Low” levels of *E. coli* (i.e., not exceeding 1 000 counts/100 mL) while 33% stations recorded “High” or “Very High” *E. coli* levels² (i.e., over 10 000 counts/100 mL) (Figure 6). The ranges of *E. coli* levels recorded at different monitoring stations in 2023 are shown in Figure 7.

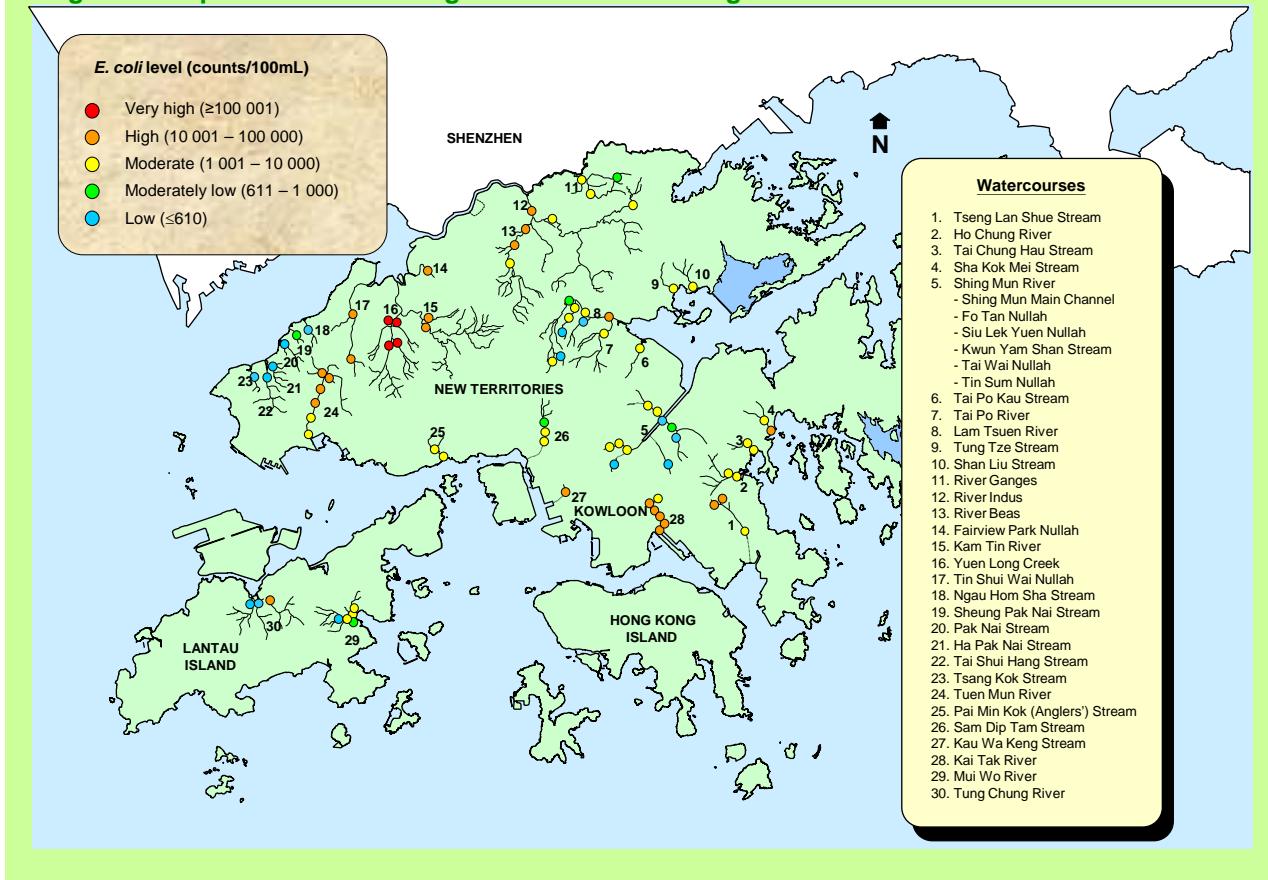
Figure 6. Overall annual geometric mean *E. coli* levels in Hong Kong’s rivers, 1988–2023



Figures are rounded to the nearest integer

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 2023



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 2023, the overall WQO compliance rate of all river monitoring stations in these areas remained high at 94%, as compared with 79% in 1993. Tai Po Kau Stream in these areas fully met the WQOs in 2023 (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 91% in 2023. In the same period, the rivers in the Tai Po District also achieved high WQO compliance. Lam Tsuen River, the major river draining through the urban area of Tai Po and joining Tai Po River before entering Tolo Harbour, achieved 95% compliance rate. The compliance rates for Tung Tze Stream also reached 98% (Figure 8).

In the Port Shelter WCZ, Ho Chung River, Sha Kok Mei Stream and Tai Chung Hau Stream achieved high WQO compliance of 100%, 98% and 93% respectively in 2023 (Figure 8).

Tseng Lan Shue Stream in the Junk Bay WCZ obtained a WQO compliance rate of 93% (Figure 8).

As for the WQI gradings, 31 out of the 32 river monitoring stations (or 97%) in the Eastern New Territories were rated as “Good” or “Excellent” in 2023, same as the situation in 2022 (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

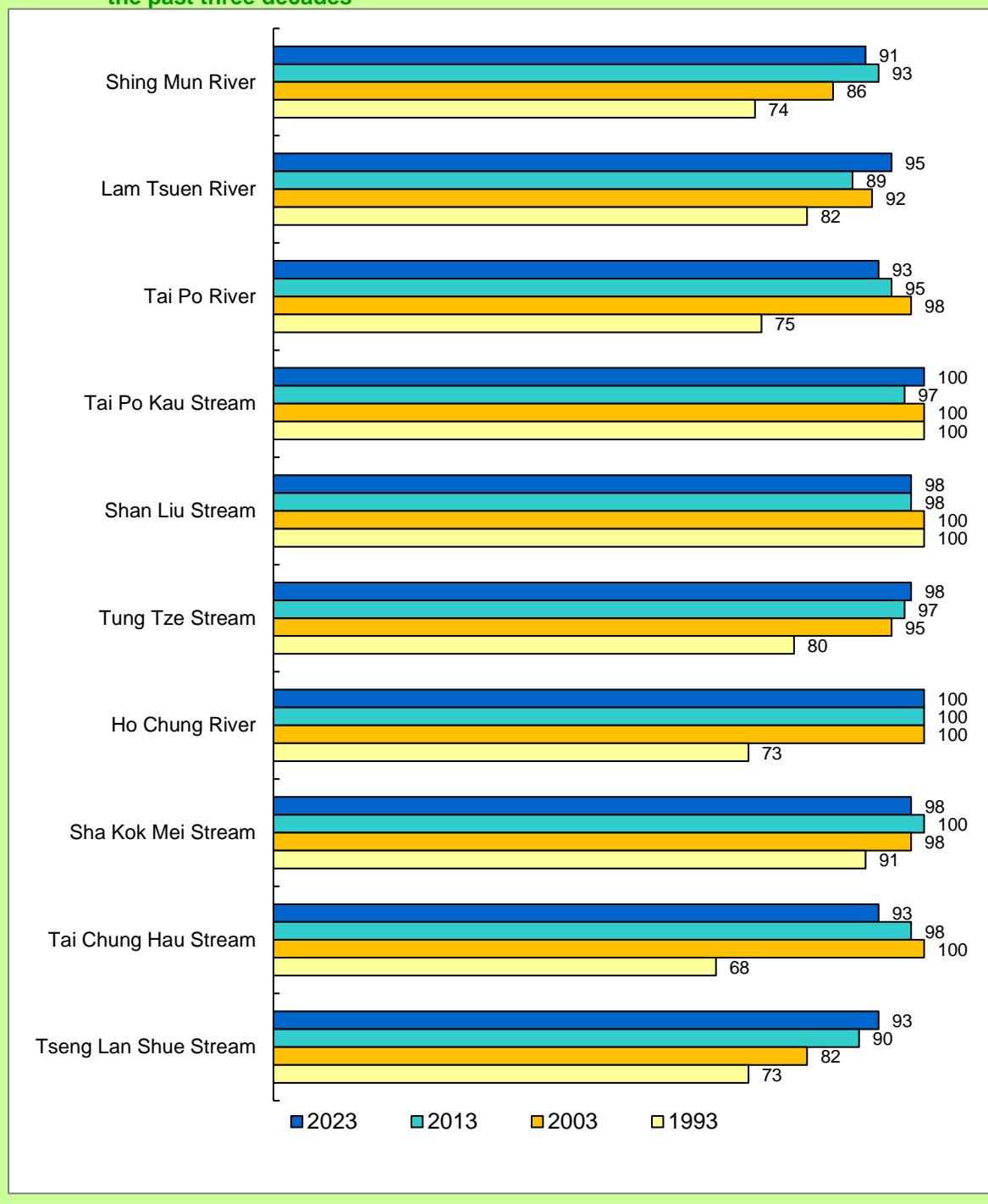


Figure 9. WQI gradings and *E. coli* levels in Shing Mun River

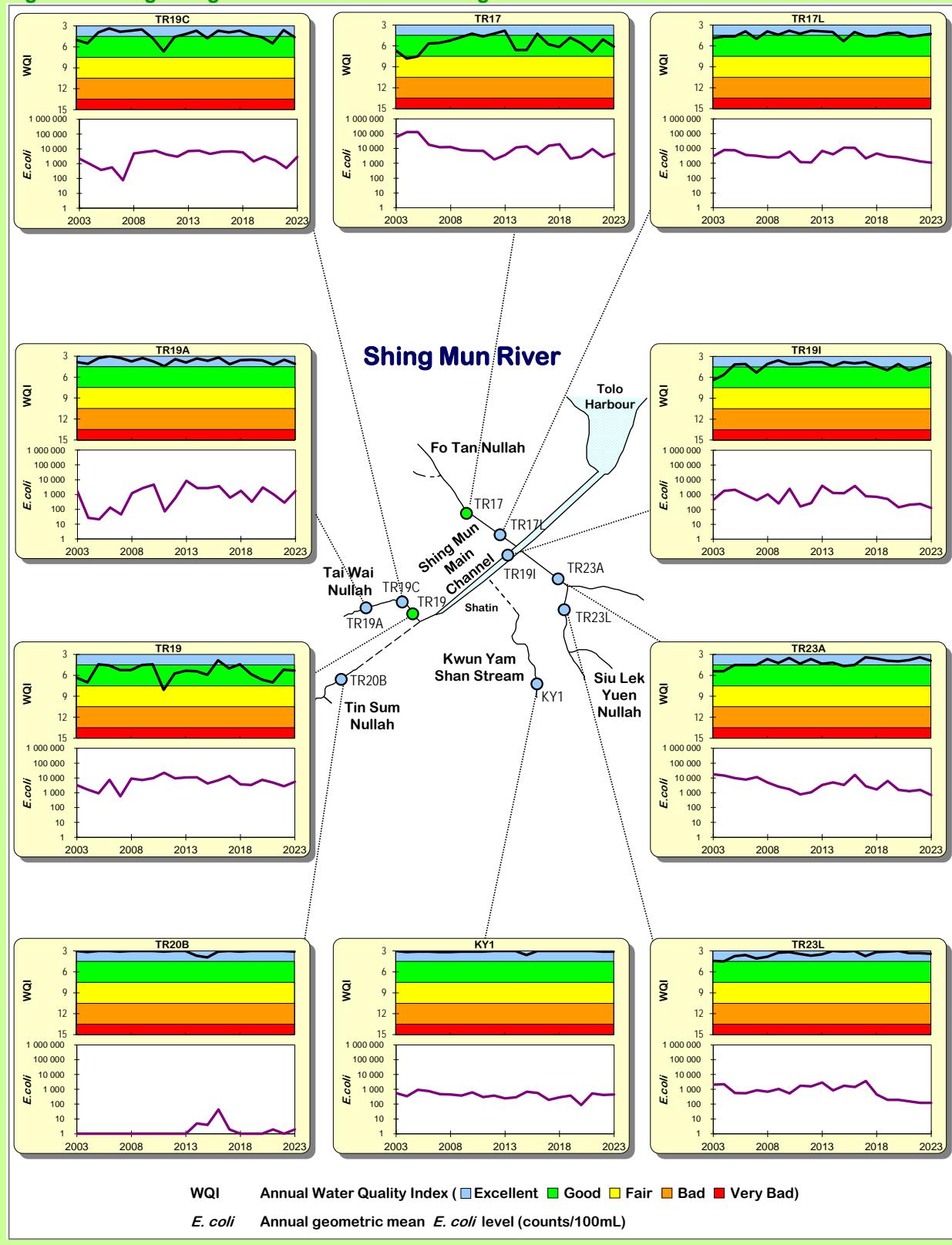


Figure 10. WQI gradings and *E. coli* levels in Lam Tsuen River and Tai Po River

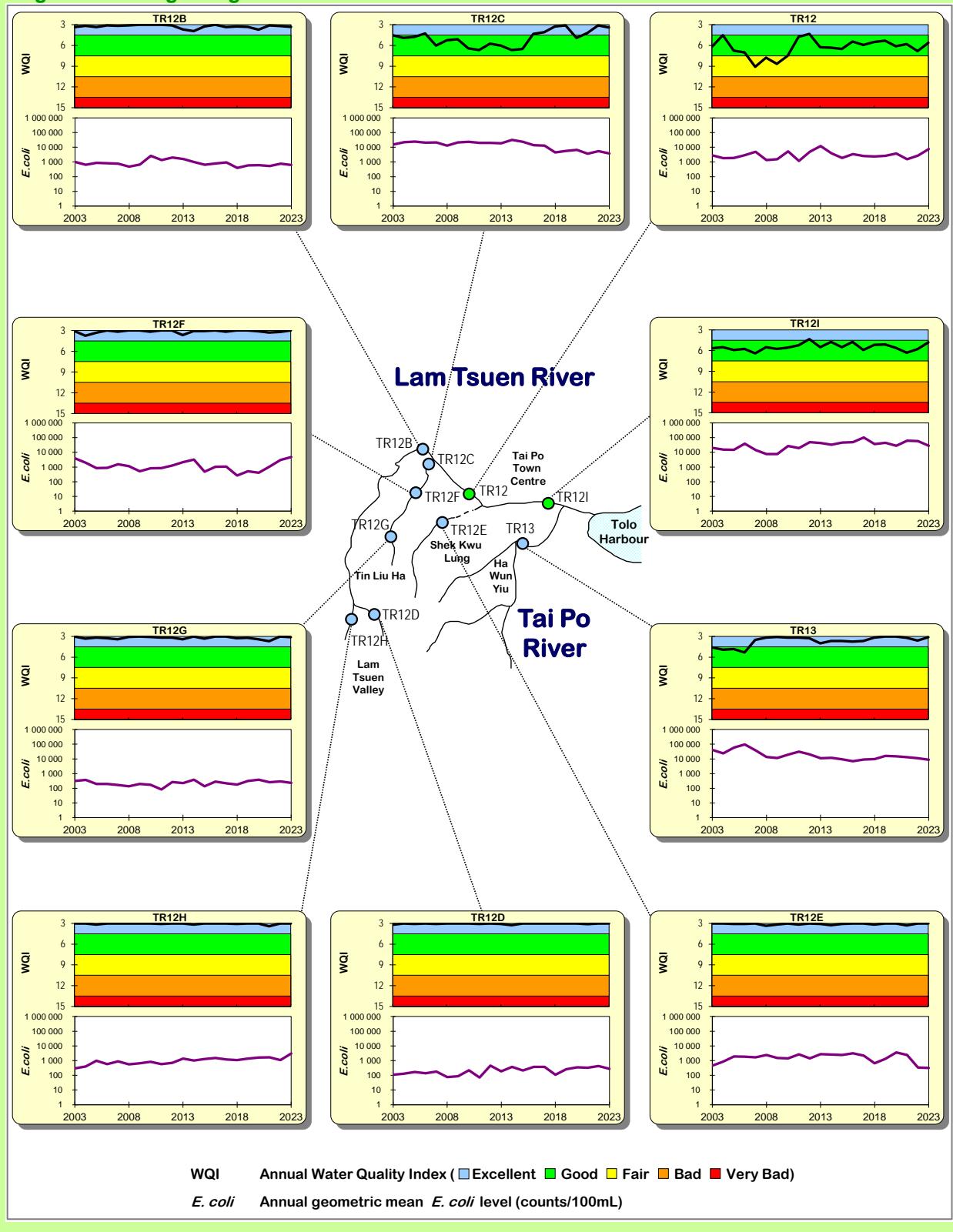


Figure 11. WQI gradings and *E. coli* levels in Tai Po Kau Stream, Shan Liu Stream and Tung Tze Stream

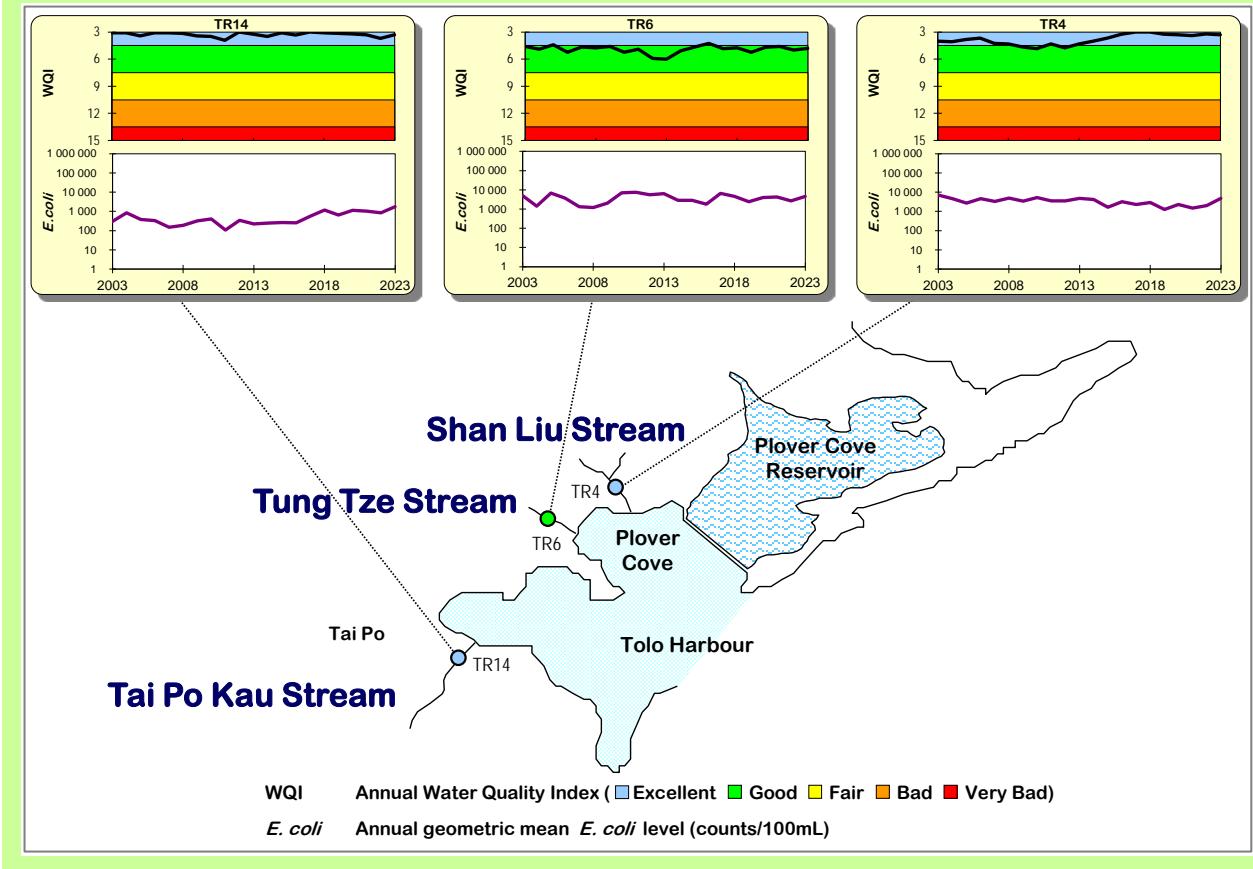


Figure 12. WQI gradings and *E. coli* levels in Tseng Lan Shue Stream

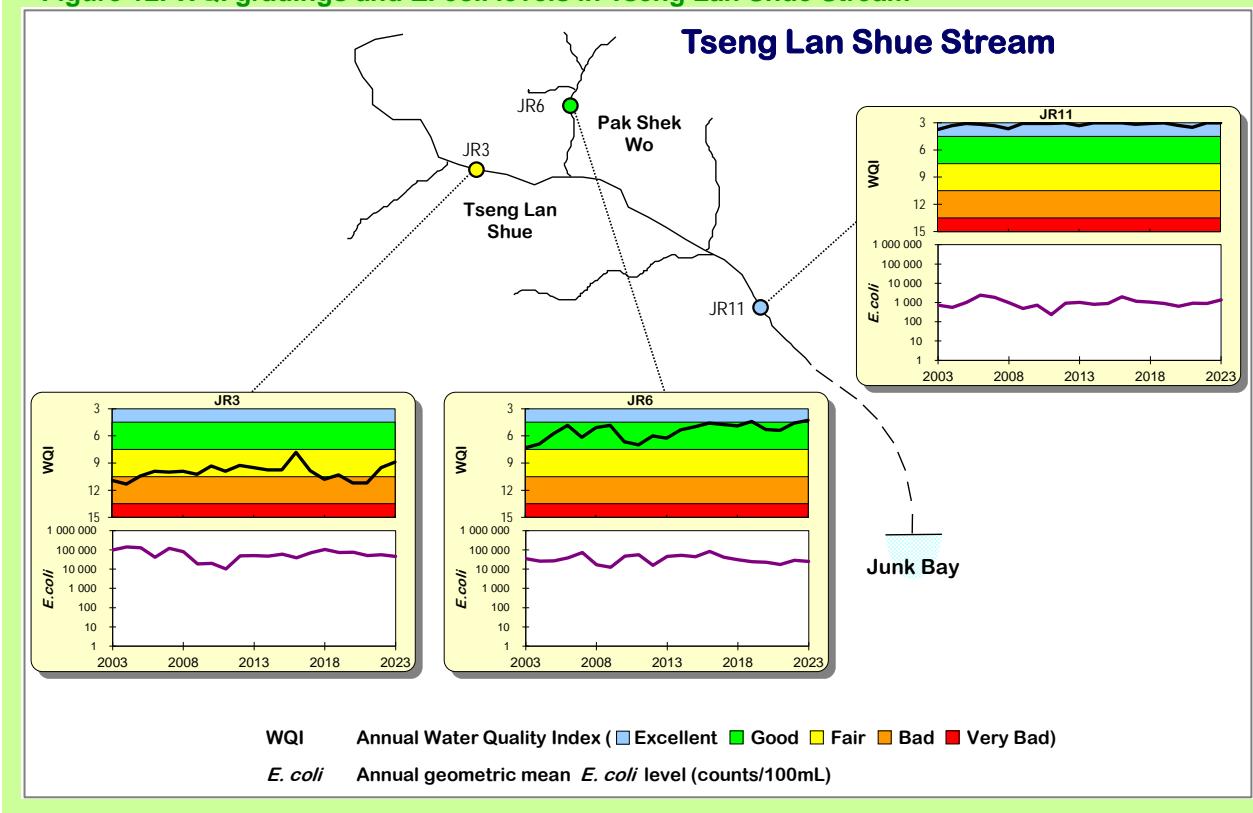
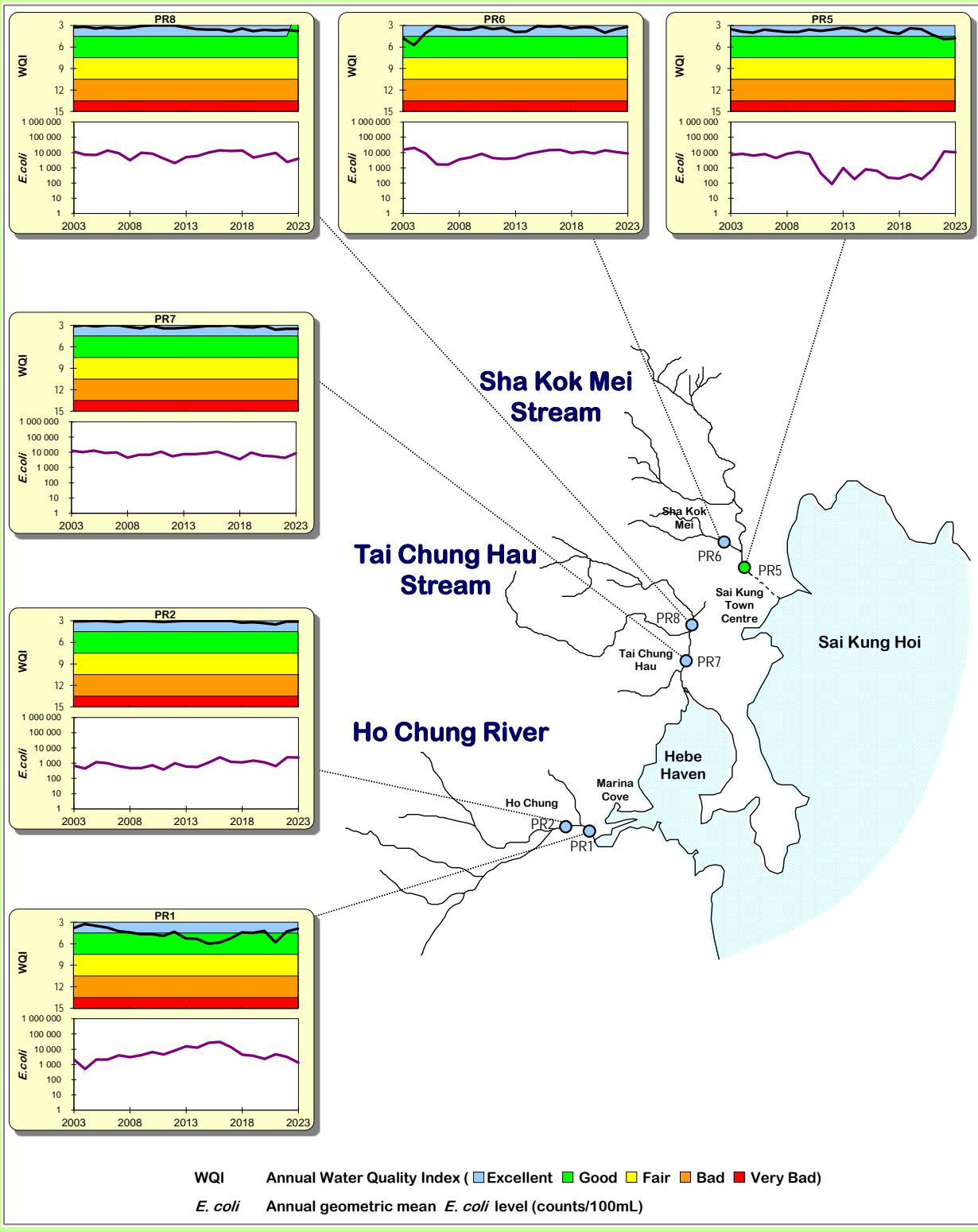


Figure 13. WQI gradings and *E. coli* levels in Ho Chung River, Tai Chung Hau Stream and Sha Kok Mei Stream



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.

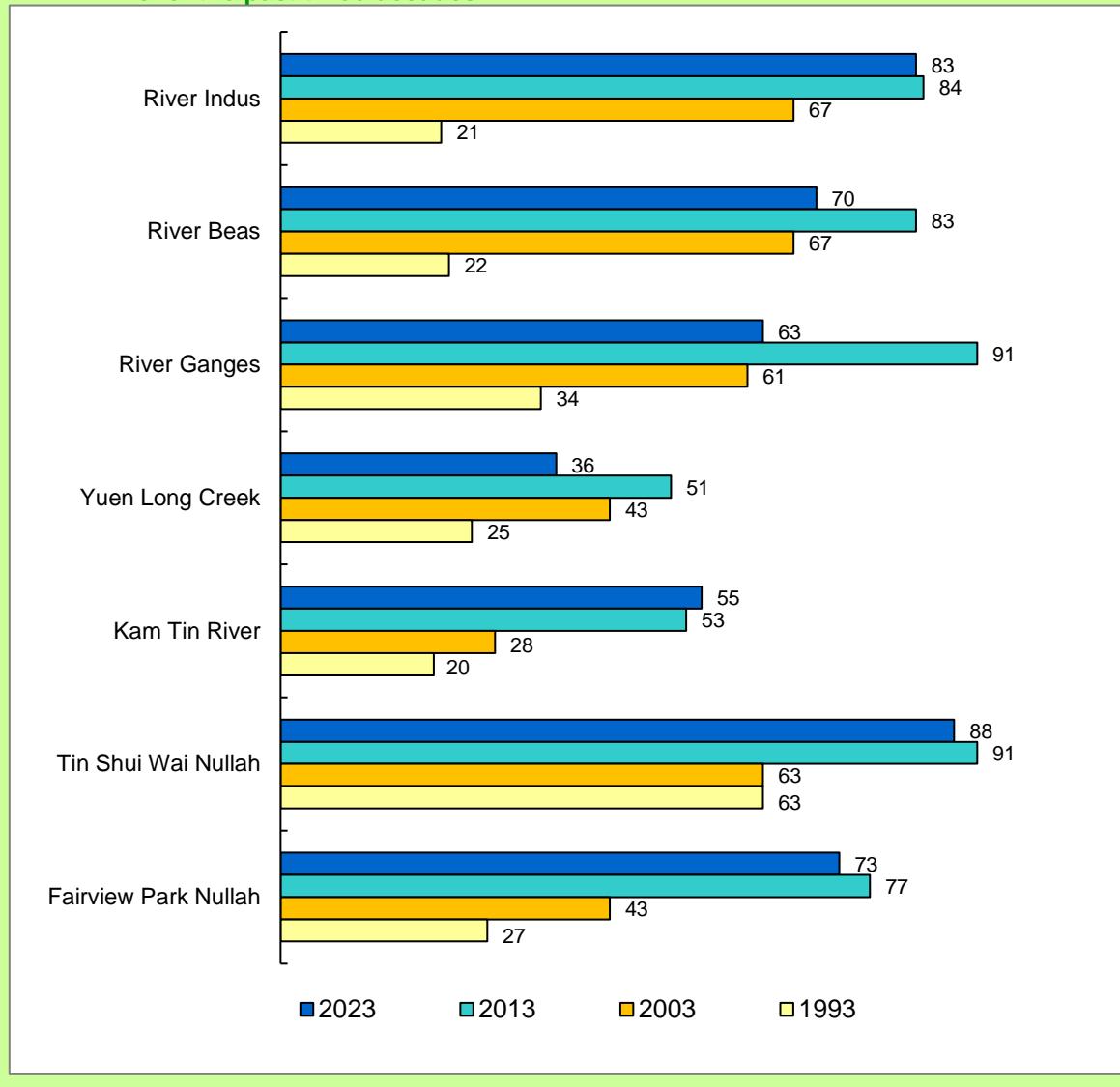
Water quality of the rivers and streams in the Northwestern New Territories has showed progressive and noticeable improvements over the past three decades. In 2023, the overall WQO compliance rate of all monitoring stations in these districts was 73%, as compared with 64% in 2003 and 39% in 1993.

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 83% in 2023, as compared with 21% in 1993 (Figure 14). The three monitoring stations (IN1, IN2 and IN3) situated along the river maintained WQI gradings of “Good” to “Excellent” in 2023 (Figure 16).

As a tributary of River Indus, River Beas recorded an overall WQO compliance rate of 70% in 2023, as compared with 22% in 1993 (Figure 14). Its three monitoring stations (RB1, RB2 and RB3) achieved “Fair” to “Good” WQI gradings in 2023 (Figure 16).

River Ganges obtained an overall WQO compliance rate of 63% in 2023, as compared with 34% in 1993 (Figure 14). In 2023, the upstream station (GR3) maintained “Excellent” WQI grading, 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



As a major watercourse 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 2023, the overall WQO compliance rate for Yuen Long Creek was 36%, as compared with 25% in 1993. For Kam Tin River, the overall WQO compliance rate in 2023 was 55%, as compared with 20% in 1993 (Figure 14).

The two upstream monitoring stations (YL1 and YL2) of Yuen Long Creek remained "Bad" and "Fair" WQI gradings respectively in 2023, while the downstream stations (i.e. YL3 and YL4) were both graded as "Bad" in 2023 (Figure 17). The two monitoring stations (KT1 and KT2) at Kam Tin River were graded as "Fair" and "Bad", respectively in 2023.

Tin Shui Wai Nullah obtained an overall WQO compliance of 88% in 2023 (Figure 14). The upstream monitoring station (TSR2) and downstream station (TSR1) were graded as “Good” and “Fair” respectively in 2023 (Figure 17).

The Fairview Park Nullah (station FVR1) was recorded a WQO compliance rate of 73% in 2023, as compared with 27% in 1993 (Figure 14). Its WQI grading remained “Fair” in 2023 (Figure 17).

In 2023, all 6 smaller streams in the Lau Fau Shan area maintained good water quality and 5 of them fully met the WQOs (Figure 15), same as the situation in 2022. The WQO compliance rate for Ngau Hom Sha Stream (station DB6) was 98%. All 6 streams maintained “Excellent” WQI grading in 2023 (Figure 18).

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

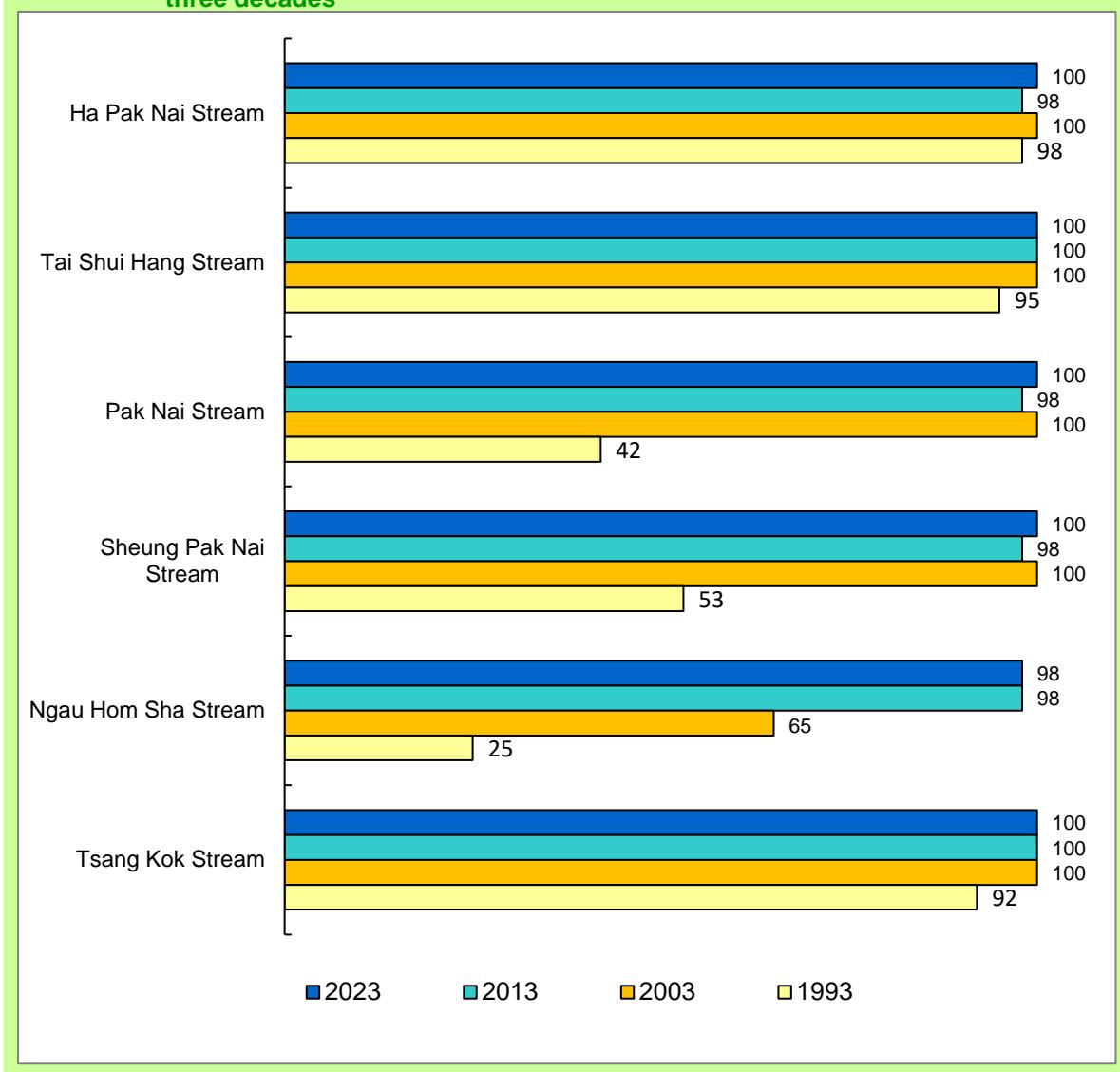


Figure 16. WQI gradings and *E. coli* levels in River Indus, River Beas and River Ganges

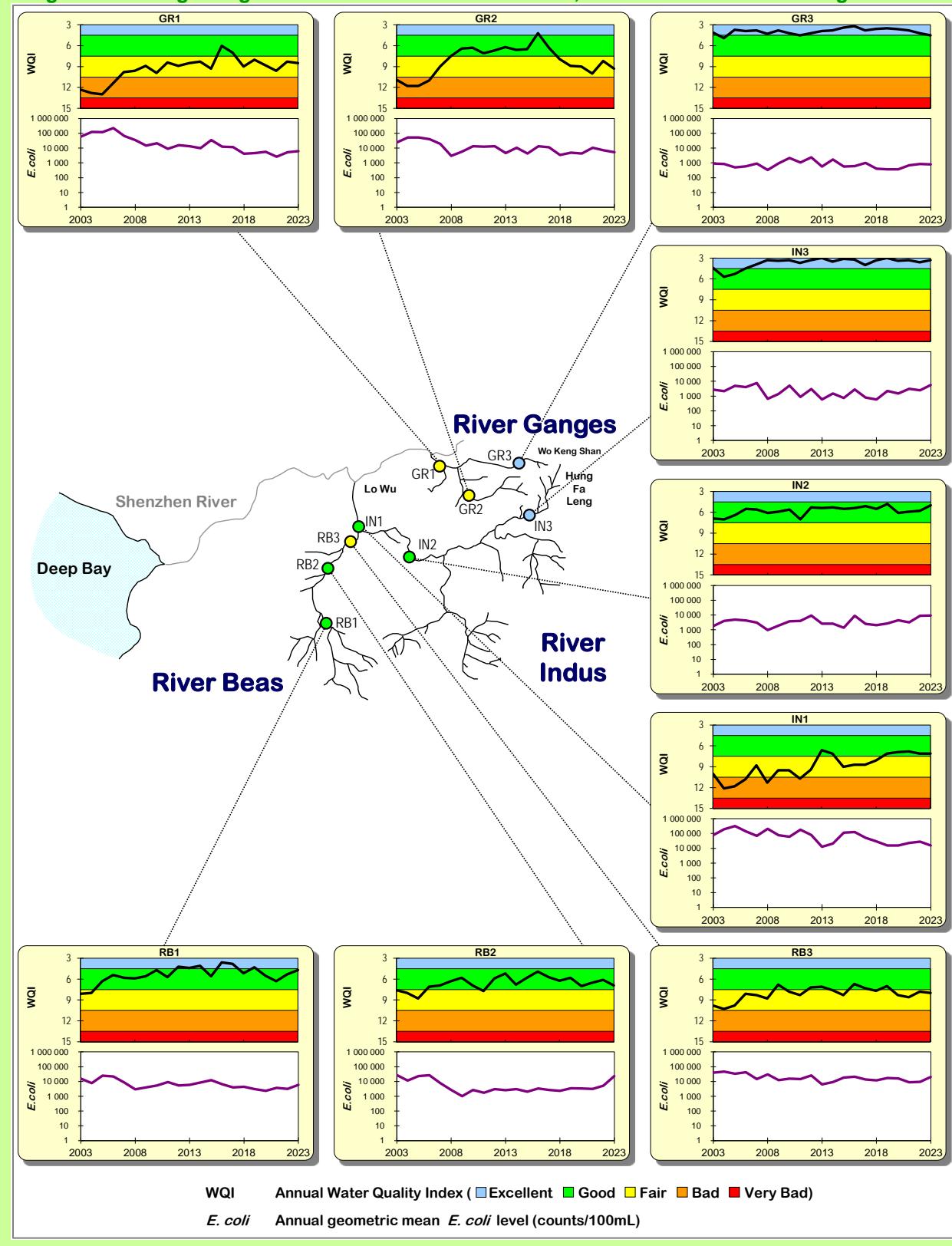


Figure 17. WQI gradings and *E. coli* levels in Yuen Long Creek, Kam Tin River, Tin Shui Wai Nullah and Fairview Park Nullah

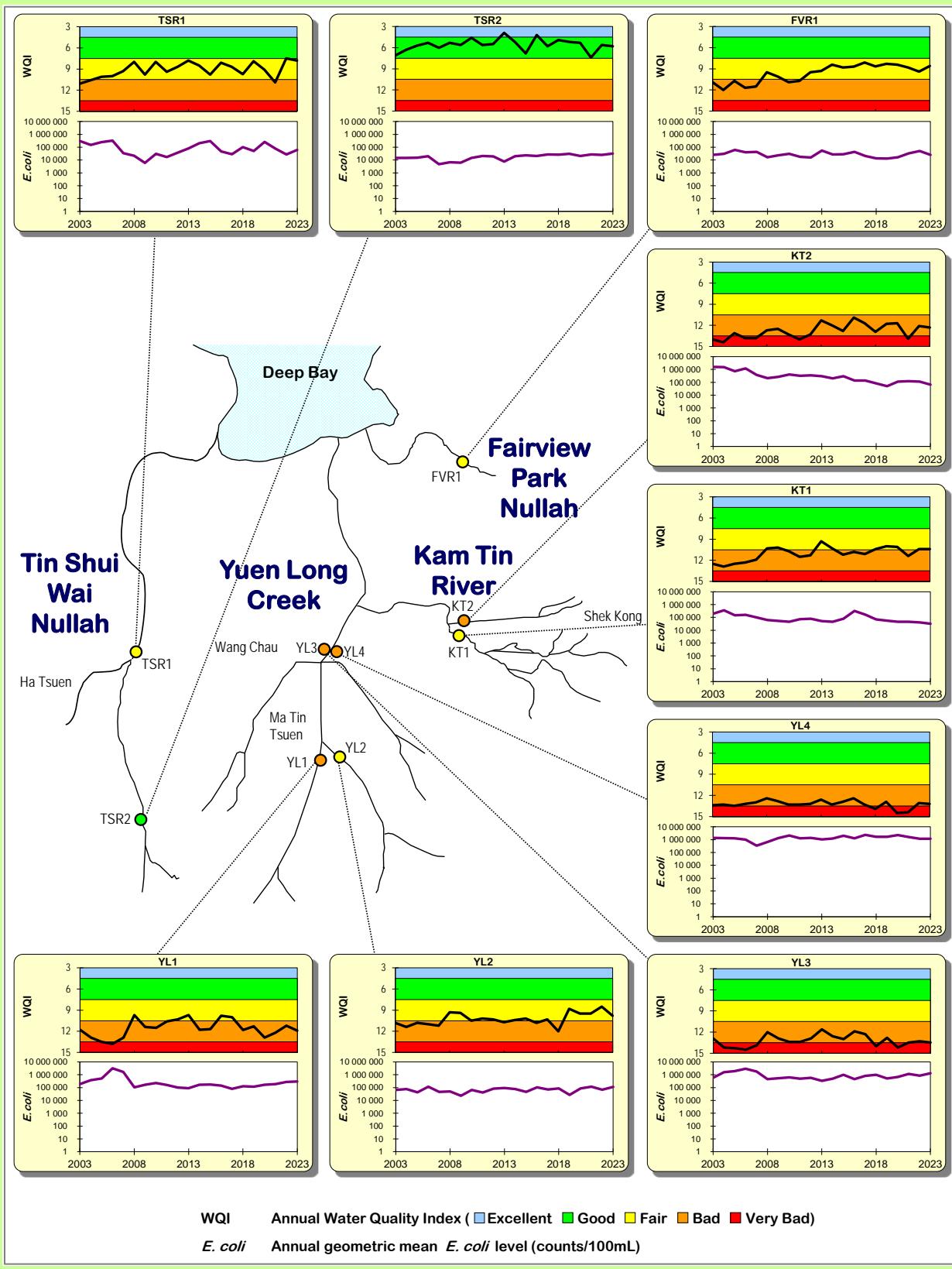
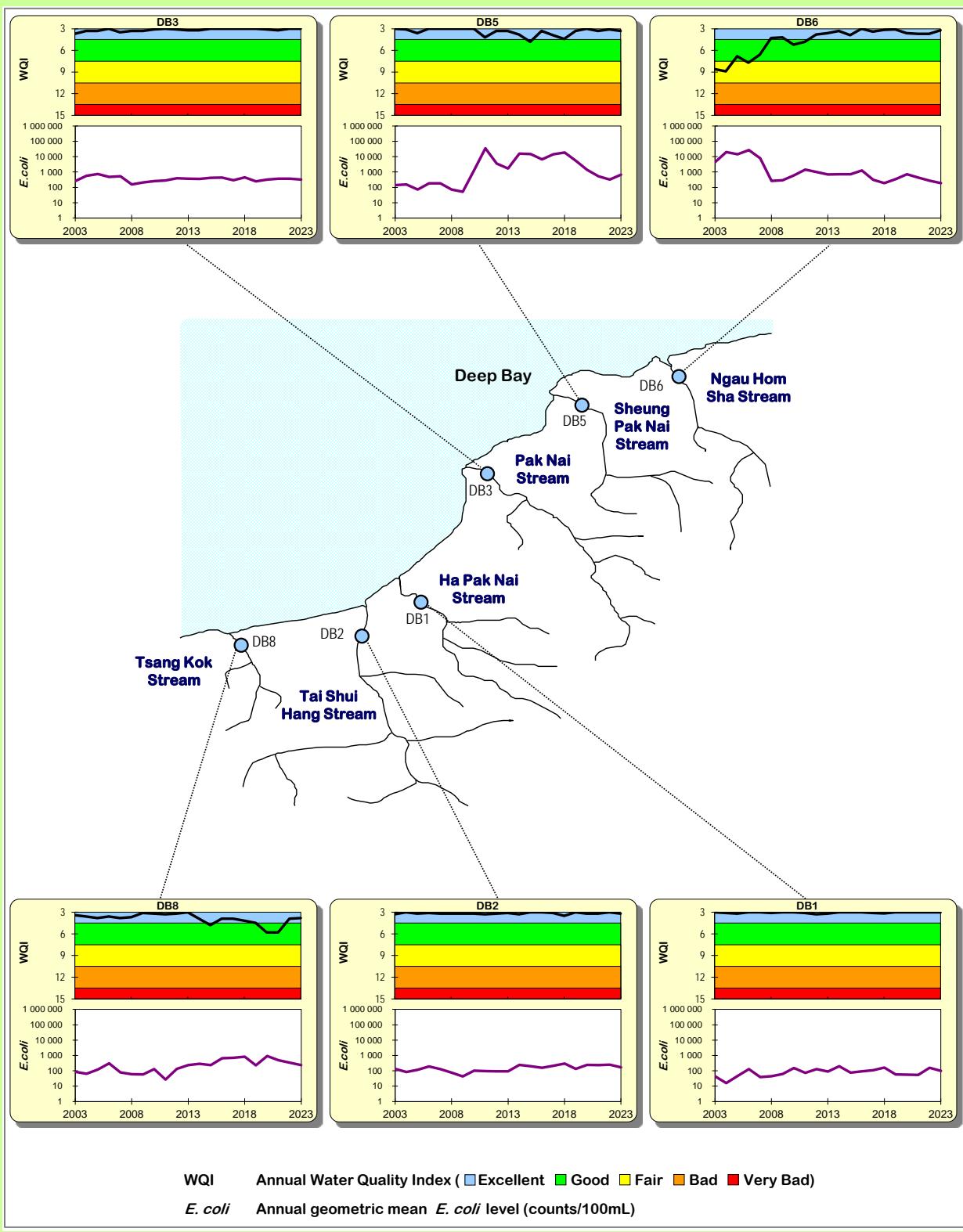


Figure 18. WQI gradings and *E. coli* levels in Ha Pak Nai Stream, Tai Shui Hang Stream, Pak Nai Stream, Sheung Pak Nai Stream, Ngau Hom Sha Stream and Tsang Kok Stream



3.3 Lantau Island

Two rivers on Lantau Island with a total of eight monitoring stations are monitored by the EPD: 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 2023, the overall WQO compliance rates of all river monitoring stations on Lantau Island were 98%, as compared to 92% in 1993. The WQO compliance rate of Mui Wo River and Tung Chung River were 99% and 94%, respectively (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 2023 (Figures 20 and 21).

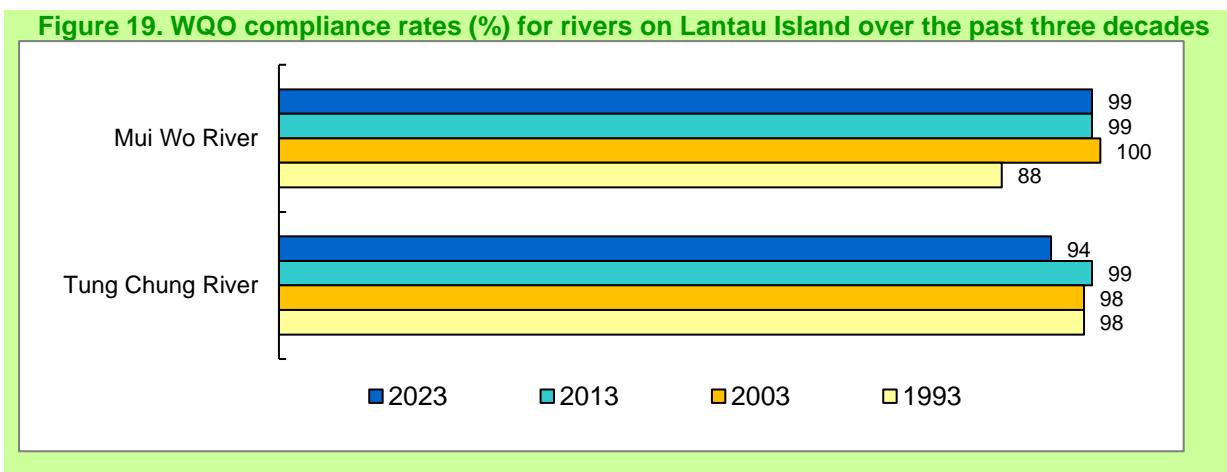


Figure 20. WQI gradings and *E. coli* levels in Mui Wo River

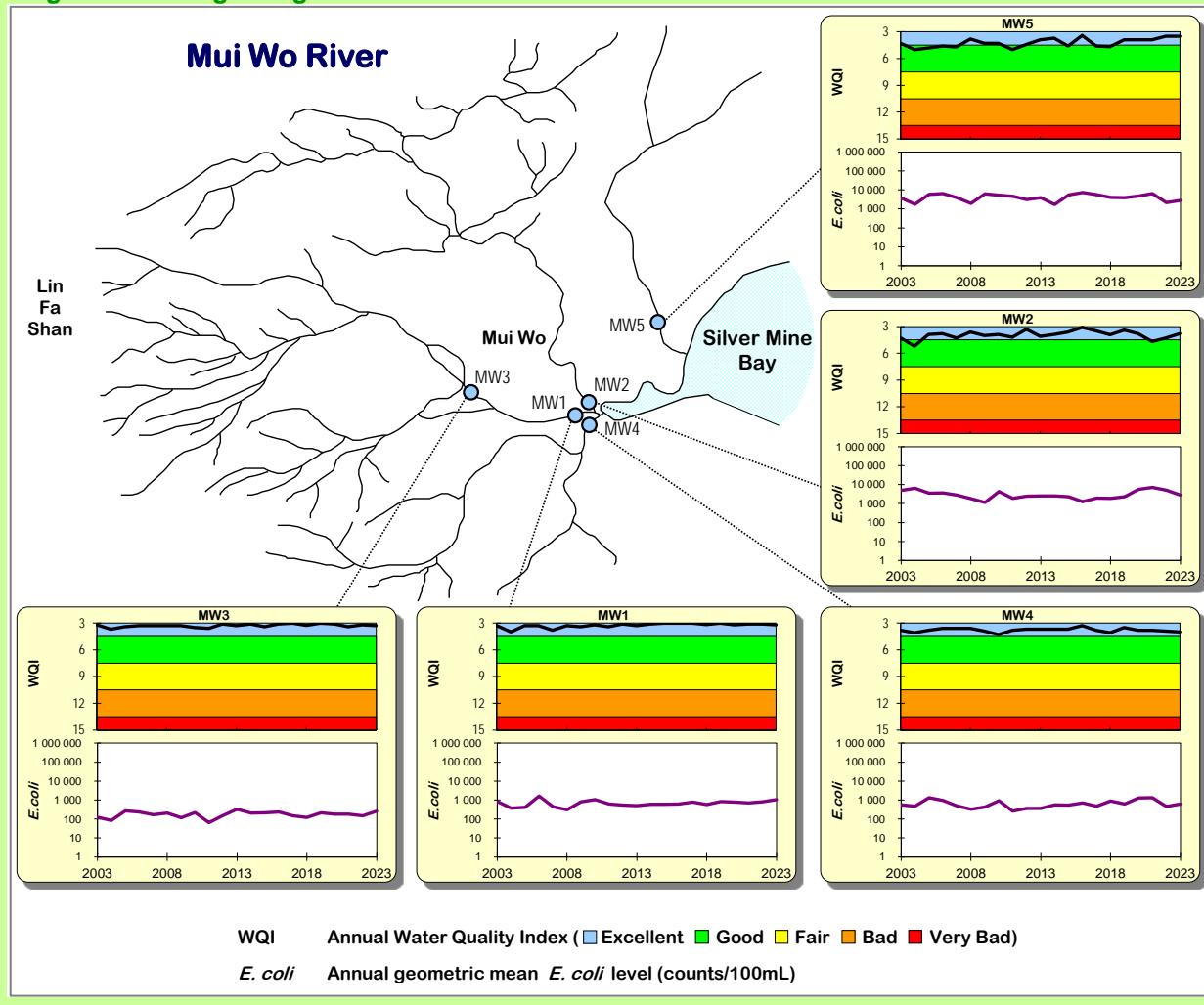
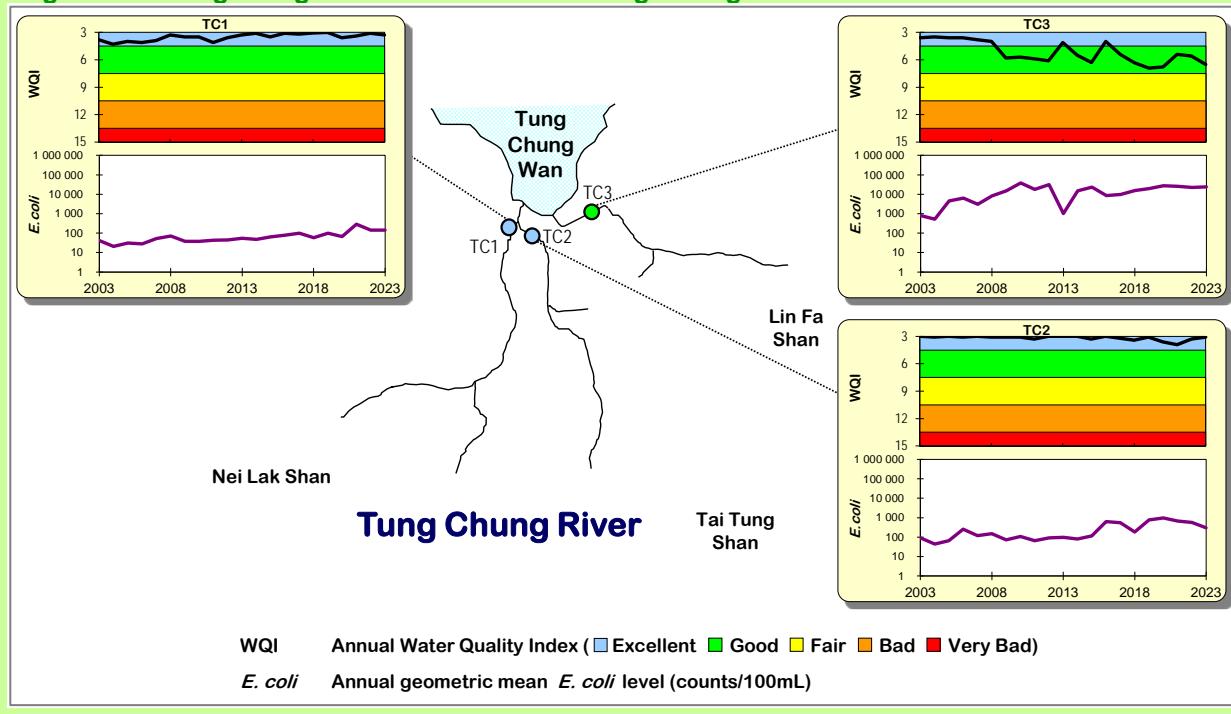


Figure 21. WQI gradings and *E. coli* levels in Tung Chung River



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 2023, the overall WQO compliance rate of all monitoring stations in the Southwestern New Territories and Kowloon was 89%, as compared to 79% in 2003.

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 41% in 1993 to 87% in 2023 (Figure 22). In 2023, five of the six monitoring stations (TN2, TN3, TN4, TN5 and TN6) in the river were rated as “Good” to “Fair” WQI grading while one of the upstream monitoring stations (TN1) was graded as “Bad” in 2023, mainly due to discharges from unsewered rural areas (Figure 23). To address this issue and protect the water quality of Tuen Mun River, the Government has installed a dry weather flow interceptor near the West Rail Siu Hong Station to collect and divert the village runoffs upstream (TN1) to the nearby sewerage system.

Pai Min Kok (Anglers') Stream located near Sham Tseng achieved an overall WQO compliance rate of 97% in 2023 (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 2023 (Figure 22). All three monitoring stations located along the stream maintained “Excellent” WQI grading (Figure 24).

Kau Wa Keng Stream (station KW3) in Kwai Chung achieved a WQO compliance rate of 97% in 2023 as compared with 85% in 1993 (Figure 22), and maintained a “Good” WQI grading (Figure 24).

Kai Tak River in East Kowloon attained a WQO compliance rate of 81% in 2023, as compared with 69% in 2003 (Figure 22). In 2023, all monitoring stations in the river were graded as “Good” to “Fair” WQI grading (Figure 25).

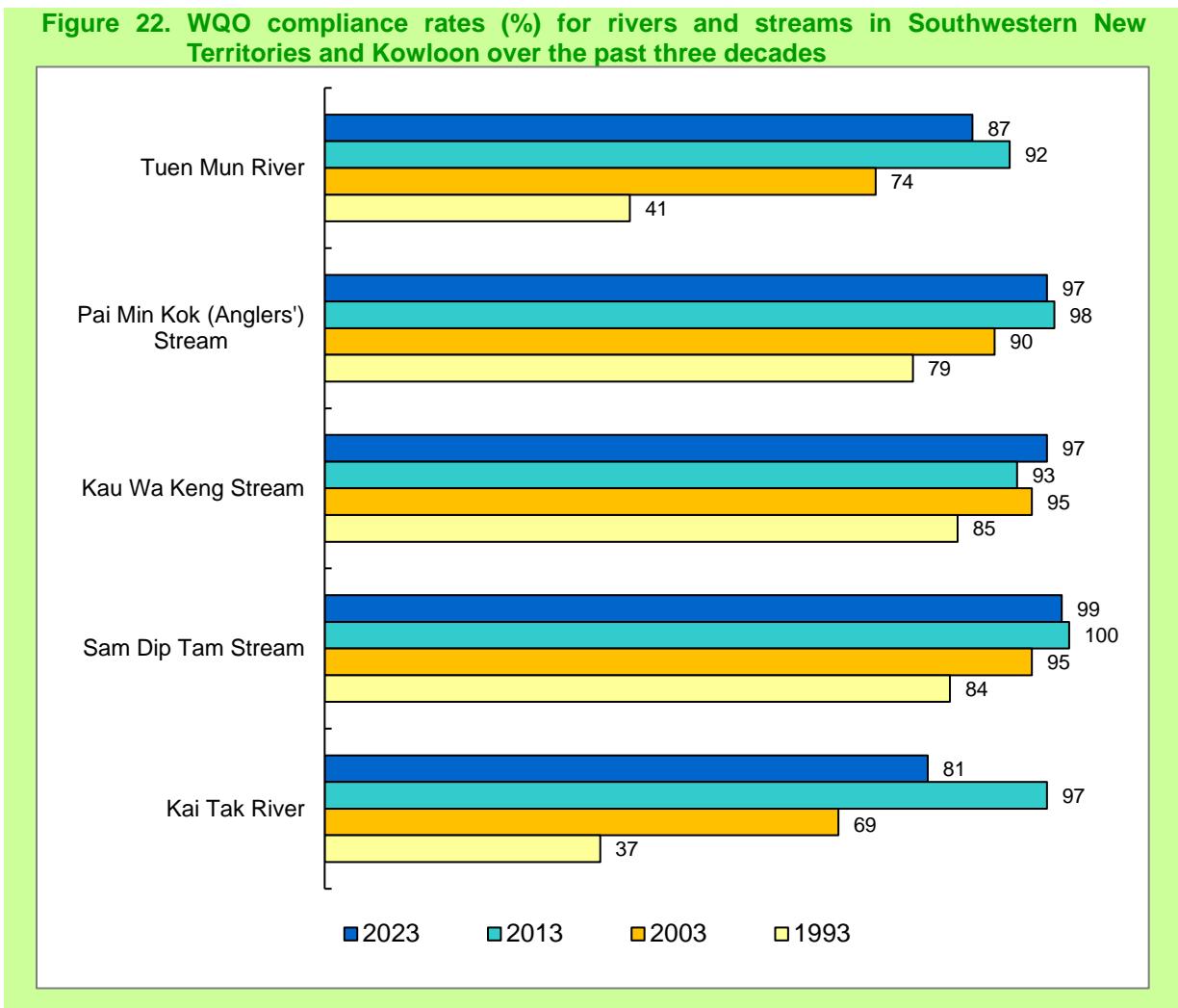


Figure 23. WQI gradings and *E. coli* levels in Tuen Mun River

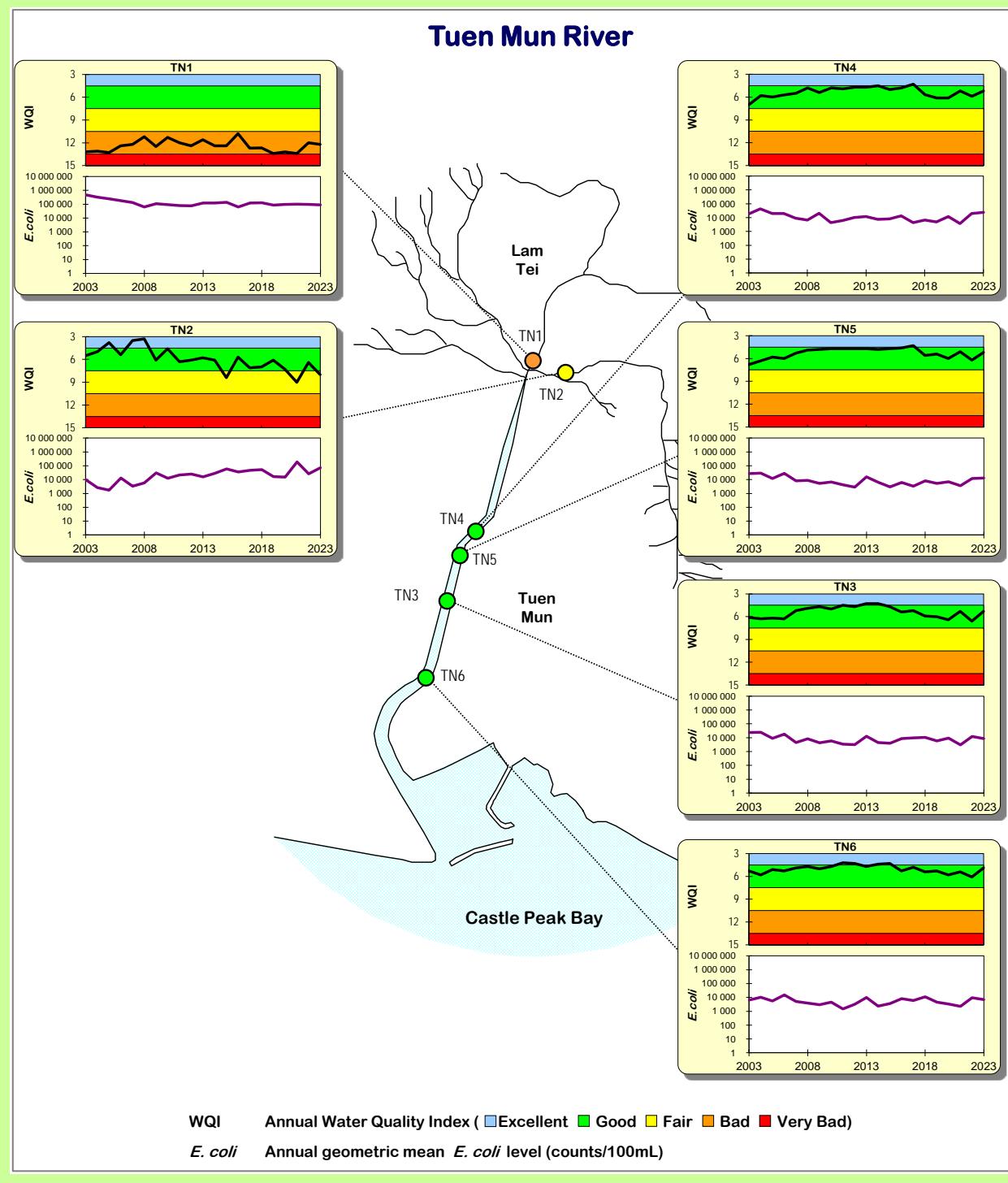


Figure 24. WQI gradings and *E. coli* levels in Pai Min Kok (Anglers') Stream, Sam Dip Tam Stream and Kau Wa Keng Stream

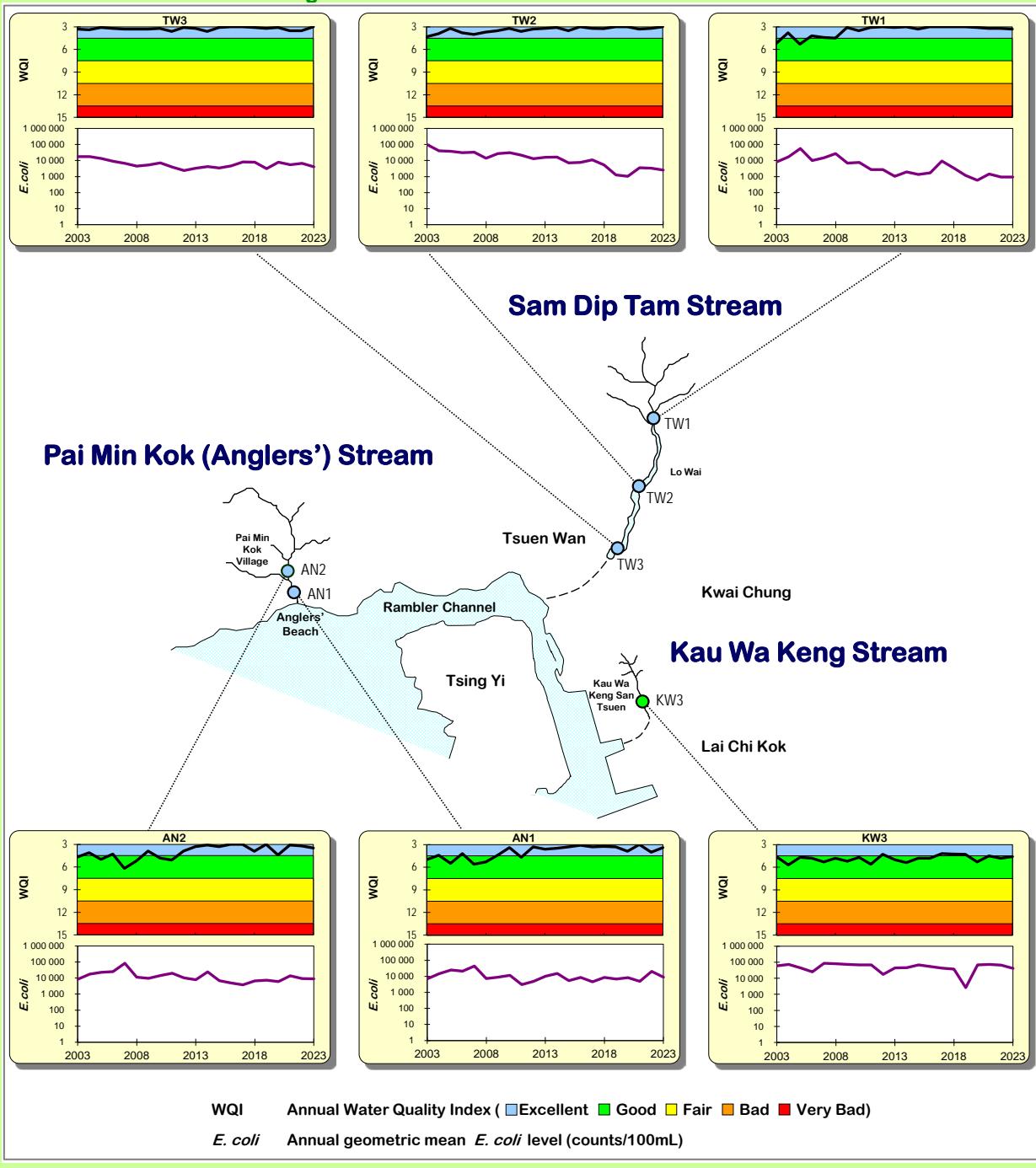
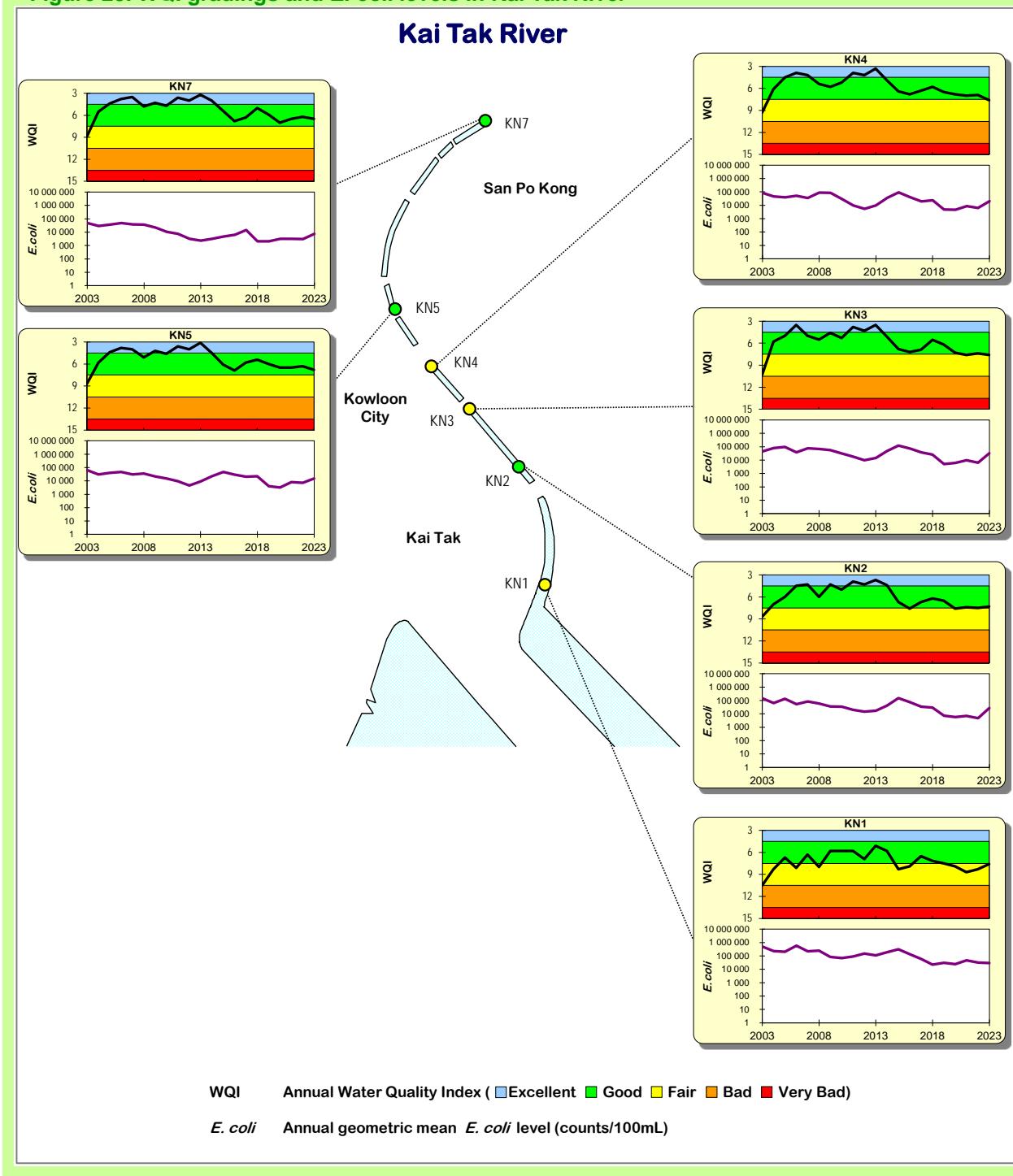


Figure 25. WQI gradings and *E. coli* levels in Kai Tak River



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 <i>Shing Mun Main Channel</i> <i>Siu Lek Yuen Nullah</i> <i>Fo Tan Nullah</i> <i>Kwun Yam Shan Stream</i> <i>Tai Wai Nullah</i> <i>Tin Sum Nullah</i>	TR19I (1) TR23A, TR23L (2) TR17, TR17L (2) KY1 (1) TR19, TR19A, TR19C (3) TR20B (1)	monthly monthly monthly monthly monthly monthly
Tai Po Town Centre	Lam Tsuen River Tai Po River	TR12, TR12B, TR12C, TR12D, TR12E, TR12F, TR12G, TR12H, TR12I (9) TR13 (1)	monthly monthly
Tai Po Rural Area	Tai Po Kau Stream Shan Liu Stream Tung Tze Stream	TR14 (1) TR4 (1) TR6 (1)	monthly monthly monthly
Sai Kung	Ho Chung River Sha Kok Mei Stream Tai Chung Hau Stream	PR1, PR2 (2) PR5, PR6 (2) PR7, PR8 (2)	monthly monthly monthly
Tseung Kwan O	Tseng Lan Shue Stream	JR3, JR6, JR11 (3)	monthly
Northwestern New Territories			
North District	River Indus (Ng Tung River) River Beas (Sheung Yue River) River Ganges (Ping Yuen River)	IN1, IN2, IN3 (3) RB1, RB2, RB3 (3) GR1, GR2, GR3 (3)	monthly monthly monthly
Yuen Long	Yuen Long Creek Kam Tin River Tin Shui Wai Nullah Fairview Park Nullah	YL1, YL2, YL3, YL4 (4) KT1, KT2 (2) TSR1, TSR2 (2) FVR1 (1)	monthly monthly monthly monthly
Lau Fau Shan	Ha Pak Nai Stream Tai Shui Hang Stream Pak Nai Stream Sheung Pak Nai Stream Ngau Hom Sha Stream Tsang Kok Stream	DB1 (1) DB2 (1) DB3 (1) DB5 (1) DB6 (1) DB8 (1)	monthly monthly monthly monthly monthly 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 Sam Dip Tam Stream Kau Wa Keng Stream	AN1, AN2 (2) TW1, TW2, TW3 (3) KW3 (1)	monthly monthly monthly
Kowloon	Kai Tak River	KN1, KN2, KN3, KN4, KN5, KN7 (6)	monthly
Total	30	82	-

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	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		
<i>Escherichia coli</i> (<i>E. coli</i>)	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 µg/L	In house method GL-OR-34, based on APHA 20ed 10200H 2 / Government Laboratory
Phaeopigment	0.2 µg/L	

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
	TR13	6.5 - 8.5	5	30	20	4
Tai Po River	TR14	6.0 - 9.0	5	30	25	4
Tai Po Kau 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 Oxygen 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 Oxygen 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

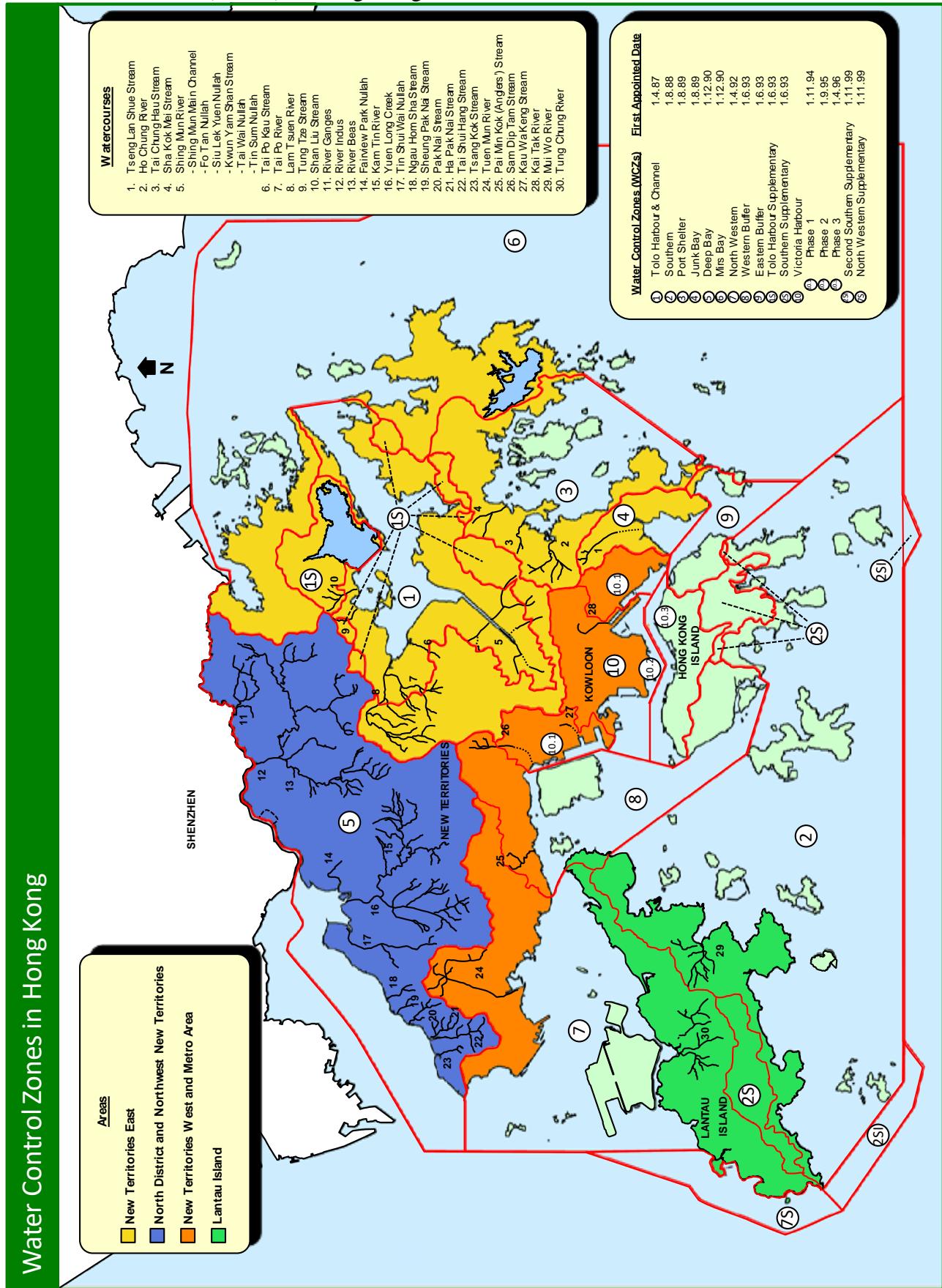
* The WQO compliance for suspended solids is based on annual median value, while WQO compliance for other parameters is based on individual measurements.

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 Oxygen 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
	Tai Po River	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
		TR13	22° 26' 24.7" N	114° 09' 58.8" E
		TR14	22° 26' 10.7" N	114° 11' 15.5" E
Port Shelter	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
	Ho Chung River	PR1	22° 21' 16.8" N	114° 15' 02.0" E
	Sha Kok Mei Stream	PR2	22° 21' 17.8" N	114° 14' 49.3" E
	Tai Chung Hau Stream	PR5	22° 23' 04.1" N	114° 16' 16.9" E
Junk Bay	Tseng Lan Shue Stream	PR6	22° 23' 10.4" N	114° 16' 10.8" E
		PR7	22° 22' 11.4" N	114° 15' 32.9" E
		PR8	22° 22' 24.8" N	114° 15' 35.8" E
Deep Bay	River Indus	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
	River Beas	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° 07' 33.5" E
	River Ganges	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
	Yuen Long Creek	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
	Kam Tin River	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
	Tin Shui Wai Nullah	YL4	22° 26' 55.3" N	114° 01' 33.6" E
		KT1	22° 26' 24.3" N	114° 03' 29.0" E
		KT2	22° 26' 33.2" N	114° 03' 39.0" E
	Fairview Park Nullah	TSR1	22° 26' 47.2" N	113° 59' 50.4" E
		TSR2	22° 25' 46.0" N	113° 59' 43.6" E
		FVR1	22° 28' 57.4" N	114° 02' 44.8" E
Southern	Ha Pak Nai Stream	DB1	22° 25' 24.8" N	113° 56' 33.3" E
		DB2	22° 25' 11.1" N	113° 56' 19.7" E
		Pak Nai Stream	22° 26' 15.1" N	113° 56' 57.9" E
		DB5	22° 26' 46.7" N	113° 57' 28.1" E
		DB6	22° 27' 02.2" N	113° 57' 51.4" E
	Ngau Hom Sha Stream	DB8	22° 25' 07.5" N	113° 55' 38.1" E
		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
North Western	Tung Chung River	MW5	22° 16' 10.8" N	113° 59' 49.6" E
		TC1	22° 16' 37.8" N	113° 55' 47.7" E
		TC2	22° 16' 22.1" N	113° 55' 57.2" E
		TC3	22° 16' 45.3" N	113° 56' 19.1" E
		TN1	22° 24' 50.9" N	113° 58' 47.5" E
	Tuen Mun River	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
Victoria Harbour	Sam Dip Tam Stream	AN2	22° 21' 56.2" N	114° 03' 17.5" E
		TW1	22° 23' 01.7" N	114° 07' 26.4" E
		TW2	22° 22' 45.6" N	114° 07' 27.3" E
	Kau Wa Keng Stream	TW3	22° 22' 36.1" N	114° 07' 24.0" E
		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 2023

Parameter	Unit	Shing Mun Main Channel		Siu Lek Yuen Nullah
		TR19I	TR23L	TR23A
Dissolved Oxygen	mg/L	7.3 (5.6 - 9.2)	8.3 (7.8 - 9.6)	6.4 (4.3 - 7.7)
pH		8.0 (7.4 - 8.2)	8.6 (8.2 - 9.3)	7.7 (7.4 - 8.0)
Suspended Solids	mg/L	6.5 (2.9 - 17.0)	1.7 (0.7 - 9.8)	3.2 (1.2 - 19.0)
5-Day Biochemical Oxygen Demand	mg/L	2.7 (0.4 - 5.6)	0.5 (<0.1 - 11.0)	1.3 (0.4 - 3.3)
Chemical Oxygen Demand	mg/L	20 (6 - 31)	7 (4 - 18)	13 (6 - 30)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
<i>E. coli</i>	counts/ 100mL	<127 (<10 - 2 900)	<123 (<10 - 9 000)	699 (180 - 7 600)
Faecal Coliforms	counts/ 100mL	1 114 (10 - 41 000)	<1 071 (<10 - 16 000)	5 911 (400 - 53 000)
Ammonia-Nitrogen	mg/L	0.063 (0.030 - 0.100)	0.015 (<0.005 - 0.054)	0.110 (0.041 - 0.190)
Nitrate-Nitrogen	mg/L	0.067 (0.010 - 0.550)	0.275 (0.150 - 0.420)	0.265 (0.210 - 0.410)
Total Kjeldahl Nitrogen	mg/L	0.37 (0.19 - 0.60)	0.18 (<0.05 - 0.59)	0.30 (0.21 - 0.62)
Orthophosphate Phosphorus	mg/L	0.011 (<0.002 - 0.047)	0.008 (0.004 - 0.019)	0.019 (<0.002 - 0.037)
Total Phosphorus	mg/L	0.07 (0.03 - 0.24)	0.02 (<0.02 - 0.04)	0.06 (0.03 - 0.09)
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 - 60)	<50 (<50 - 110)
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 - 3)	<1 (<1 - <1)	<1 (<1 - 3)
Copper	µg/L	4 (<1 - 6)	1 (<1 - 4)	3 (1 - 4)
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	0.038 (0.006 - 0.384)	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 2023

Parameter	Unit	<u>Fo Tan Nullah</u>		<u>Kwun Yam Shan Stream</u>
		TR17	TR17L	KY1
Dissolved Oxygen	mg/L	9.6 (8.1 - 13.0)	6.1 (5.2 - 7.4)	8.3 (7.7 - 10.0)
pH	mg/L	9.0 (8.0 - 9.8)	7.7 (7.4 - 8.1)	7.9 (7.6 - 8.2)
Suspended Solids	mg/L	5.6 (1.6 - 15.0)	4.2 (1.5 - 200.0)	4.8 (2.1 - 22.0)
5-Day Biochemical Oxygen Demand	mg/L	2.4 (<0.1 - 22.0)	1.8 (0.1 - 7.1)	0.3 (<0.1 - 3.3)
Chemical Oxygen Demand	mg/L	12 (5 - 18)	18 (7 - 36)	6 (<2 - 10)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
<i>E. coli</i>	counts/ 100mL	4 428 (1 300 - 17 000)	1 098 (230 - 4 300)	441 (42 - 2 100)
Faecal Coliforms	counts/ 100mL	26 388 (3 200 - 140 000)	7 461 (790 - 44 000)	2 247 (310 - 22 000)
Ammonia-Nitrogen	mg/L	0.057 (0.023 - 0.200)	0.205 (0.091 - 0.610)	0.011 (<0.005 - 0.036)
Nitrate-Nitrogen	mg/L	0.580 (0.008 - 1.200)	0.530 (0.320 - 0.920)	0.510 (0.340 - 1.100)
Total Kjeldahl Nitrogen	mg/L	0.43 (0.18 - 0.93)	0.50 (0.31 - 2.10)	0.18 (<0.05 - 0.38)
Orthophosphate Phosphorus	mg/L	0.015 (0.005 - 0.050)	0.017 (<0.002 - 0.040)	0.062 (0.039 - 0.100)
Total Phosphorus	mg/L	0.05 (0.03 - 0.11)	0.06 (0.03 - 0.39)	0.10 (0.07 - 0.14)
Sulphide	mg/L	<0.02 (<0.02 - 0.08)	<0.02 (<0.02 - 0.08)	<0.02 (<0.02 - <0.02)
Aluminium	µg/L	<50 (<50 - <50)	<50 (<50 - <50)	<50 (<50 - 80)
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 - 5)	3 (<1 - 4)	<1 (<1 - 2)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - 10)	10 (<10 - 20)	<10 (<10 - 10)
Flow	m ³ /s	0.032 (0.003 - 0.480)	NM	0.007 (0.000 - 0.086)

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 2023

Parameter	Unit	Tai Wai Nullah		Tin Sum Nullah	
		TR19A	TR19C	TR19	TR20B
Dissolved Oxygen	mg/L	9.0 (8.1 - 11.9)	8.9 (8.1 - 11.2)	9.1 (8.0 - 11.2)	8.3 (7.6 - 9.6)
pH		7.9 (7.5 - 9.2)	7.6 (7.4 - 8.2)	7.7 (7.4 - 8.5)	8.3 (7.2 - 10.1)
Suspended Solids	mg/L	3.6 (1.6 - 16.0)	2.7 (1.7 - 4.7)	3.0 (1.6 - 6.8)	9.2 (<0.5 - 260.0)
5-Day Biochemical Oxygen Demand	mg/L	1.2 (<0.1 - 9.0)	1.5 (0.3 - 10.0)	3.6 (0.6 - 23.0)	<0.1 (<0.1 - 4.1)
Chemical Oxygen Demand	mg/L	12 (4 - 29)	9 (5 - 30)	13 (4 - 31)	7 (4 - 15)
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)
<i>E. coli</i>	counts/ 100mL	<1 743 (<1 - 53 000)	2 908 (170 - 33 000)	5 634 (1 000 - 47 000)	<2 (<1 - 16)
Faecal Coliforms	counts/ 100mL	<3 294 (<1 - 80 000)	17 151 (3 400 - 180 000)	85 610 (13 000 - 1 000 000)	<2 (<1 - 58)
Ammonia-Nitrogen	mg/L	0.058 (0.024 - 0.170)	0.021 (0.007 - 0.810)	0.029 (0.013 - 0.220)	0.022 (0.007 - 0.070)
Nitrate-Nitrogen	mg/L	0.980 (0.580 - 1.400)	0.845 (0.510 - 1.300)	0.750 (0.570 - 1.500)	1.300 (0.590 - 1.900)
Total Kjeldahl Nitrogen	mg/L	0.30 (0.17 - 1.10)	0.31 (0.17 - 1.60)	0.34 (0.14 - 1.20)	0.24 (0.10 - 0.57)
Orthophosphate Phosphorus	mg/L	0.015 (<0.002 - 0.074)	0.018 (0.005 - 0.066)	0.010 (0.005 - 0.030)	0.008 (0.004 - 0.024)
Total Phosphorus	mg/L	0.04 (0.03 - 0.18)	0.04 (<0.02 - 0.13)	0.04 (0.03 - 0.14)	0.03 (<0.02 - 0.06)
Sulphide	mg/L	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - 0.04)	<0.02 (<0.02 - <0.02)
Aluminium	µg/L	<50 (<50 - <50)	<50 (<50 - <50)	<50 (<50 - <50)	60 (<50 - 490)
Cadmium	µg/L	<0.1 (<0.1 - 0.4)	<0.1 (<0.1 - 0.2)	<0.1 (<0.1 - 0.1)	<0.1 (<0.1 - <0.1)
Chromium	µg/L	<1 (<1 - 1)	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - 3)
Copper	µg/L	1 (<1 - 9)	3 (<1 - 11)	4 (<1 - 11)	<1 (<1 - 1)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - 30)	<10 (<10 - 40)	<10 (<10 - 40)	<10 (<10 - 10)
Flow	m³/s	0.024 (0.008 - 0.250)	0.063 (0.014 - 0.234)	0.119 (0.036 - 0.701)	0.039 (0.015 - 0.084)

- 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 2023 (Part 1 of 3)

Parameter	Unit	Lam Tsuen River		
		TR12H	TR12D	TR12C
Dissolved Oxygen	mg/L	8.3 (7.8 - 9.6)	8.4 (8.0 - 10.0)	8.0 (6.3 - 9.4)
pH		7.4 (7.2 - 7.7)	7.5 (7.1 - 7.7)	7.5 (7.1 - 7.7)
Suspended Solids	mg/L	1.8 (0.8 - 4.6)	1.9 (0.9 - 16.0)	4.5 (1.0 - 21.0)
5-Day Biochemical Oxygen Demand	mg/L	0.7 (<0.1 - 1.2)	0.4 (<0.1 - 1.0)	1.5 (0.6 - 4.0)
Chemical Oxygen Demand	mg/L	6 (<2 - 15)	5 (2 - 11)	11 (4 - 23)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
<i>E. coli</i>	counts/ 100mL	3 084 (800 - 17 000)	282 (17 - 3 700)	3 728 (610 - 38 000)
Faecal Coliforms	counts/ 100mL	6 906 (1 300 - 41 000)	1 461 (100 - 9 000)	11 859 (1 200 - 80 000)
Ammonia-Nitrogen	mg/L	0.018 (0.010 - 0.031)	0.011 (<0.005 - 0.026)	0.093 (0.049 - 0.250)
Nitrate-Nitrogen	mg/L	0.680 (0.510 - 1.400)	0.245 (0.098 - 0.670)	0.755 (0.430 - 1.000)
Total Kjeldahl Nitrogen	mg/L	0.17 (<0.05 - 0.37)	0.14 (0.05 - 0.52)	0.40 (0.17 - 0.98)
Orthophosphate Phosphorus	mg/L	0.026 (<0.002 - 0.060)	0.009 (<0.002 - 0.016)	0.034 (0.011 - 0.066)
Total Phosphorus	mg/L	0.06 (0.03 - 0.11)	0.03 (<0.02 - 0.09)	0.09 (0.05 - 0.21)
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 - 2)	<1 (<1 - 1)	<1 (<1 - 1)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - 30)	<10 (<10 - 30)	<10 (<10 - <10)
Flow	m³/s	0.060 (0.003 - 0.399)	0.081 (0.016 - 0.819)	0.059 (0.006 - 0.958)

- 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 2023 (Part 2 of 3)

Parameter	Unit	<u>Lam Tsuen River</u>		
		TR12G	TR12F	TR12B
Dissolved Oxygen	mg/L	8.0 (7.4 - 9.2)	8.4 (7.8 - 10.1)	8.3 (7.9 - 10.4)
pH		7.4 (7.2 - 7.5)	7.6 (7.3 - 7.8)	7.4 (7.3 - 7.8)
Suspended Solids	mg/L	4.6 (1.1 - 94.0)	2.4 (1.2 - 9.8)	2.4 (<0.5 - 13.0)
5-Day Biochemical Oxygen Demand	mg/L	0.6 (<0.1 - 1.2)	0.4 (<0.1 - 1.4)	0.7 (<0.1 - 1.4)
Chemical Oxygen Demand	mg/L	8 (<2 - 19)	7 (<2 - 20)	7 (<2 - 26)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
<i>E. coli</i>	counts/ 100mL	231 (18 - 2 200)	4 854 (90 - 140 000)	625 (87 - 6 200)
Faecal Coliforms	counts/ 100mL	3 001 (230 - 12 000)	10 899 (1 400 - 160 000)	3 054 (150 - 25 000)
Ammonia-Nitrogen	mg/L	0.014 (<0.005 - 0.040)	0.011 (<0.005 - 0.039)	0.023 (0.007 - 0.042)
Nitrate-Nitrogen	mg/L	0.087 (<0.002 - 0.310)	0.235 (0.140 - 0.520)	0.565 (0.230 - 1.400)
Total Kjeldahl Nitrogen	mg/L	0.15 (0.08 - 0.72)	0.18 (0.08 - 0.52)	0.18 (0.12 - 0.49)
Orthophosphate Phosphorus	mg/L	0.011 (<0.002 - 0.024)	0.013 (<0.002 - 0.045)	0.020 (<0.002 - 0.047)
Total Phosphorus	mg/L	0.05 (0.03 - 0.24)	0.04 (0.03 - 0.13)	0.05 (0.02 - 0.15)
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 - 2)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - 10)	<10 (<10 - 20)	<10 (<10 - <10)
Flow	m ³ /s	0.033 (0.004 - 0.088)	0.020 (0.003 - 0.500)	0.999 (0.303 - 2.111)

- 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 2023

Parameter	Unit	Lam Tsuen River		Tai Po River	
		TR12E	TR12	TR12I	TR13
Dissolved Oxygen	mg/L	8.3 (7.8 - 9.3)	10.9 (8.3 - 15.5)	5.1 (4.1 - 8.2)	8.5 (7.8 - 9.5)
pH		8.2 (7.7 - 9.8)	7.9 (7.2 - 8.6)	7.3 (7.1 - 7.5)	8.1 (7.3 - 10.2)
Suspended Solids	mg/L	2.3 (0.6 - 12.0)	2.1 (0.6 - 25.0)	3.1 (1.3 - 14.0)	4.2 (0.6 - 58.0)
5-Day Biochemical Oxygen Demand	mg/L	0.5 (<0.1 - 0.8)	3.1 (<0.1 - 5.6)	2.1 (<0.1 - 4.8)	0.9 (<0.1 - 3.8)
Chemical Oxygen Demand	mg/L	7 (2 - 14)	15 (3 - 23)	15 (3 - 48)	10 (4 - 12)
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)
<i>E. coli</i>	counts/ 100mL	<317 (<1 - 3 800)	7 495 (360 - 40 000)	27 913 (4 800 - 270 000)	8 745 (4 300 - 25 000)
Faecal Coliforms	counts/ 100mL	<857 (<1 - 10 000)	25 968 (1 100 - 220 000)	81 495 (8 000 - 800 000)	18 888 (7 400 - 54 000)
Ammonia-Nitrogen	mg/L	0.031 (<0.005 - 0.120)	0.033 (0.009 - 0.240)	0.390 (0.073 - 0.660)	0.081 (0.026 - 0.280)
Nitrate-Nitrogen	mg/L	0.905 (0.590 - 1.600)	0.965 (0.420 - 1.700)	0.560 (0.380 - 1.400)	0.825 (0.460 - 1.400)
Total Kjeldahl Nitrogen	mg/L	0.18 (<0.05 - 0.32)	0.54 (0.10 - 1.20)	0.67 (0.23 - 0.99)	0.41 (0.17 - 0.95)
Orthophosphate Phosphorus	mg/L	0.013 (<0.002 - 0.026)	0.049 (0.010 - 0.100)	0.028 (0.008 - 0.058)	0.041 (0.008 - 0.079)
Total Phosphorus	mg/L	0.04 (0.02 - 0.07)	0.14 (0.03 - 0.23)	0.10 (0.03 - 0.13)	0.08 (0.04 - 0.12)
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 - 0.04)
Aluminium	µg/L	<50 (<50 - 90)	<50 (<50 - <50)	<50 (<50 - <50)	<50 (<50 - 320)
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 - 2)	<1 (<1 - 14)
Copper	µg/L	<1 (<1 - 2)	2 (<1 - 6)	2 (<1 - 4)	<1 (<1 - 3)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - <10)	<10 (<10 - 20)	<10 (<10 - 20)	<10 (<10 - <10)
Flow	m ³ /s	0.078 (0.014 - 0.374)	0.017 (0.007 - 1.787)	NM	0.313 (0.135 - 1.365)

- 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 2023

Parameter	Unit	Tai Po Kau Stream	Shan Liu Stream	Tung Tze Stream
		TR14	TR4	TR6
Dissolved Oxygen	mg/L	7.7 (5.4 - 9.3)	7.8 (7.0 - 9.3)	5.6 (4.3 - 8.0)
pH		6.9 (6.7 - 7.2)	7.6 (7.3 - 8.0)	7.5 (7.0 - 7.9)
Suspended Solids	mg/L	2.4 (0.8 - 84.0)	1.9 (0.5 - 12.0)	7.8 (2.5 - 16.0)
5-Day Biochemical Oxygen Demand	mg/L	0.3 (<0.1 - 0.8)	1.1 (<0.1 - 8.6)	1.5 (0.2 - 3.6)
Chemical Oxygen Demand	mg/L	9 (6 - 21)	9 (6 - 11)	15 (9 - 36)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
<i>E. coli</i>	counts/ 100mL	1 768 (720 - 22 000)	4 799 (800 - 24 000)	4 549 (500 - 24 000)
Faecal Coliforms	counts/ 100mL	4 448 (1 000 - 35 000)	14 129 (5 800 - 34 000)	10 445 (2 800 - 36 000)
Ammonia-Nitrogen	mg/L	0.103 (0.053 - 0.270)	0.175 (0.042 - 0.430)	0.345 (0.060 - 1.500)
Nitrate-Nitrogen	mg/L	0.275 (0.150 - 0.540)	0.605 (0.380 - 0.940)	0.340 (0.082 - 0.860)
Total Kjeldahl Nitrogen	mg/L	0.26 (0.14 - 0.36)	0.43 (0.15 - 0.87)	0.52 (0.24 - 1.60)
Orthophosphate Phosphorus	mg/L	0.014 (<0.002 - 0.034)	0.049 (0.027 - 0.077)	0.042 (<0.002 - 0.100)
Total Phosphorus	mg/L	0.04 (0.03 - 0.07)	0.07 (0.05 - 0.13)	0.11 (0.06 - 0.17)
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 - 3)
Copper	µg/L	<1 (<1 - 3)	<1 (<1 - <1)	2 (1 - 7)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - 10)	<10 (<10 - 30)	<10 (<10 - 10)
Flow	m³/s	0.064 (0.008 - 0.720)	0.019 (0.002 - 0.185)	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 2023

Parameter	Unit	<u>Ho Chung River</u>	
		PR1	PR2
Dissolved Oxygen	mg/L	7.1 (5.7 - 9.9)	8.4 (7.3 - 9.5)
pH		7.4 (7.1 - 8.3)	7.5 (7.4 - 7.7)
Suspended Solids	mg/L	4.1 (0.5 - 8.5)	3.1 (0.6 - 9.2)
5-Day Biochemical Oxygen Demand	mg/L	0.9 (0.1 - 1.6)	0.7 (<0.1 - 1.7)
Chemical Oxygen Demand	mg/L	10 (5 - 16)	6 (3 - 8)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
<i>E. coli</i>	counts/ 100mL	1 313 (120 - 14 000)	2 332 (580 - 15 000)
Faecal Coliforms	counts/ 100mL	4 552 (460 - 26 000)	7 714 (1 200 - 29 000)
Ammonia-Nitrogen	mg/L	0.440 (0.110 - 0.960)	0.052 (0.007 - 0.130)
Nitrate-Nitrogen	mg/L	0.400 (0.220 - 0.730)	0.360 (0.250 - 0.500)
Total Kjeldahl Nitrogen	mg/L	0.79 (0.41 - 1.20)	0.19 (0.13 - 0.31)
Orthophosphate Phosphorus	mg/L	0.029 (0.013 - 0.098)	0.011 (0.005 - 0.023)
Total Phosphorus	mg/L	0.09 (0.03 - 0.15)	0.03 (<0.02 - 0.05)
Sulphide	mg/L	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)
Aluminium	µg/L	<50 (<50 - <50)	<50 (<50 - 80)
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 - 3)	<1 (<1 - 1)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - 10)	<10 (<10 - 10)
Flow	m ³ /s	NM	0.250 (0.058 - 1.050)

- 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 2023

Parameter	Unit	<u>Sha Kok Mei Stream</u>	
		PR5	PR6
Dissolved Oxygen	mg/L	7.2 (5.6 - 8.1)	8.7 (7.8 - 10.4)
pH		7.4 (7.2 - 7.6)	7.3 (7.2 - 7.5)
Suspended Solids	mg/L	5.4 (2.9 - 19.0)	2.3 (1.0 - 22.0)
5-Day Biochemical Oxygen Demand	mg/L	3.4 (0.6 - 6.5)	0.9 (<0.1 - 3.2)
Chemical Oxygen Demand	mg/L	9 (4 - 15)	8 (4 - 18)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
<i>E. coli</i>	counts/ 100mL	10 471 (270 - 120 000)	8 910 (1 300 - 46 000)
Faecal Coliforms	counts/ 100mL	30 344 (1 300 - 210 000)	18 924 (1 700 - 210 000)
Ammonia-Nitrogen	mg/L	0.375 (0.120 - 0.660)	0.170 (0.026 - 0.600)
Nitrate-Nitrogen	mg/L	1.020 (0.480 - 1.800)	1.550 (0.790 - 2.200)
Total Kjeldahl Nitrogen	mg/L	0.74 (0.36 - 1.20)	0.35 (0.22 - 0.90)
Orthophosphate Phosphorus	mg/L	0.078 (0.016 - 0.140)	0.053 (0.014 - 0.110)
Total Phosphorus	mg/L	0.13 (0.07 - 0.18)	0.08 (0.05 - 0.15)
Sulphide	mg/L	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)
Aluminium	µg/L	<50 (<50 - 60)	<50 (<50 - 50)
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 - 10)	<10 (<10 - <10)
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 2023

Parameter	Unit	<u>Tai Chung Hau Stream</u>	
		PR7	PR8
Dissolved Oxygen	mg/L	8.3 (7.3 - 10.7)	8.0 (7.3 - 9.6)
pH		7.5 (7.2 - 7.8)	7.5 (7.3 - 9.5)
Suspended Solids	mg/L	3.9 (0.9 - 58.0)	5.6 (1.0 - 90.0)
5-Day Biochemical Oxygen Demand	mg/L	2.3 (0.4 - 6.4)	4.1 (0.6 - 8.5)
Chemical Oxygen Demand	mg/L	10 (6 - 26)	12 (6 - 34)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
<i>E. coli</i>	counts/ 100mL	8 533 (750 - 73 000)	<3 894 (<10 - 40 000)
Faecal Coliforms	counts/ 100mL	22 802 (1 100 - 310 000)	19 671 (10 - 150 000)
Ammonia-Nitrogen	mg/L	0.078 (0.033 - 0.230)	0.072 (0.013 - 0.180)
Nitrate-Nitrogen	mg/L	0.530 (0.360 - 2.000)	0.680 (0.450 - 1.100)
Total Kjeldahl Nitrogen	mg/L	0.39 (0.21 - 0.97)	0.53 (0.25 - 2.20)
Orthophosphate Phosphorus	mg/L	0.016 (0.010 - 0.073)	0.016 (0.007 - 0.066)
Total Phosphorus	mg/L	0.07 (0.02 - 0.14)	0.09 (<0.02 - 0.25)
Sulphide	mg/L	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - <0.02)
Aluminium	µg/L	<50 (<50 - 80)	<50 (<50 - 990)
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	1 (<1 - 3)	<1 (<1 - 4)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - 20)	<10 (<10 - 20)
Flow	m ³ /s	0.315 (0.056 - 3.430)	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 2023

Parameter	Unit	Tseng Lan Shue Stream		
		JR3	JR6	JR11
Dissolved Oxygen	mg/L	6.0 (4.6 - 7.6)	7.9 (7.2 - 8.9)	8.8 (8.0 - 11.2)
pH		7.2 (7.0 - 7.3)	7.5 (7.1 - 7.7)	7.5 (7.0 - 7.9)
Suspended Solids	mg/L	7.0 (1.5 - 100.0)	5.7 (0.8 - 36.0)	3.1 (1.4 - 7.5)
5-Day Biochemical Oxygen Demand	mg/L	6.0 (1.0 - 13.0)	4.6 (1.7 - 12.0)	1.4 (0.3 - 2.2)
Chemical Oxygen Demand	mg/L	16 (8 - 28)	16 (6 - 33)	9 (6 - 11)
Oil & Grease	mg/L	<0.5 (<0.5 - 1.1)	<0.5 (<0.5 - 1.3)	<0.5 (<0.5 - <0.5)
<i>E. coli</i>	counts/ 100mL	46 111 (19 000 - 190 000)	25 308 (6 100 - 71 000)	1 358 (270 - 19 000)
Faecal Coliforms	counts/ 100mL	85 063 (31 000 - 230 000)	78 138 (12 000 - 380 000)	5 279 (590 - 110 000)
Ammonia-Nitrogen	mg/L	4.200 (0.690 - 9.200)	0.170 (0.036 - 0.320)	0.074 (0.018 - 0.500)
Nitrate-Nitrogen	mg/L	1.450 (0.720 - 2.200)	3.000 (1.000 - 3.400)	4.000 (0.800 - 5.400)
Total Kjeldahl Nitrogen	mg/L	5.00 (1.50 - 9.90)	1.05 (0.39 - 1.70)	0.45 (0.23 - 0.94)
Orthophosphate Phosphorus	mg/L	0.340 (0.089 - 0.590)	0.300 (0.110 - 0.400)	0.390 (0.048 - 0.460)
Total Phosphorus	mg/L	0.57 (0.15 - 0.79)	0.42 (0.14 - 0.54)	0.41 (0.08 - 0.50)
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 - 70)
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)	2 (<1 - 2)	1 (1 - 2)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	10 (<10 - 10)	<10 (<10 - 20)	<10 (<10 - <10)
Flow	m ³ /s	NM	NM	0.326 (0.056 - 4.824)

- 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 2023

Parameter	Unit	River Indus		
		IN1	IN2	IN3
Dissolved Oxygen	mg/L	4.9 (2.5 - 6.9)	7.3 (5.7 - 10.9)	8.6 (7.0 - 10.1)
pH		7.1 (7.0 - 7.3)	7.4 (7.3 - 7.6)	7.7 (7.2 - 8.0)
Suspended Solids	mg/L	16.0 (6.7 - 34.0)	7.1 (2.7 - 360.0)	4.2 (1.6 - 50.0)
5-Day Biochemical Oxygen Demand	mg/L	3.1 (0.7 - 11.0)	2.9 (1.0 - 6.3)	1.2 (0.2 - 3.7)
Chemical Oxygen Demand	mg/L	21 (11 - 25)	12 (7 - 38)	9 (5 - 24)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
<i>E. coli</i>	counts/ 100mL	15 341 (3 800 - 160 000)	9 233 (2 100 - 110 000)	5 639 (600 - 76 000)
Faecal Coliforms	counts/ 100mL	43 031 (7 500 - 1 100 000)	45 801 (8 000 - 540 000)	22 021 (2 800 - 150 000)
Ammonia-Nitrogen	mg/L	0.935 (0.450 - 3.400)	0.485 (0.150 - 0.920)	0.099 (0.036 - 0.160)
Nitrate-Nitrogen	mg/L	3.100 (0.970 - 4.500)	1.200 (0.710 - 1.500)	0.625 (0.320 - 1.300)
Total Kjeldahl Nitrogen	mg/L	2.15 (1.10 - 5.50)	1.10 (0.48 - 2.80)	0.33 (0.14 - 0.90)
Orthophosphate Phosphorus	mg/L	0.155 (0.042 - 0.560)	0.063 (0.012 - 0.160)	0.071 (0.023 - 0.220)
Total Phosphorus	mg/L	0.26 (0.13 - 0.81)	0.14 (0.10 - 0.69)	0.13 (0.08 - 0.34)
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 - 0.2)	<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	2 (1 - 2)	1 (<1 - 3)	<1 (<1 - 3)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - 20)	<10 (<10 - 10)	<10 (<10 - 10)
Flow	m³/s	10.164 (1.155 - 30.107)	NM	0.062 (0.029 - 0.369)

- 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 2023

Parameter	Unit	<u>River Beas</u>		
		RB1	RB2	RB3
Dissolved Oxygen	mg/L	9.8 (7.3 - 11.0)	7.4 (5.5 - 8.1)	5.5 (3.4 - 10.1)
pH		8.1 (7.2 - 9.0)	7.3 (7.1 - 7.6)	7.3 (7.1 - 8.0)
Suspended Solids	mg/L	7.3 <td>12.8 (2.4 - 210.0)</td> <td>23.0 (3.1 - 120.0)</td>	12.8 (2.4 - 210.0)	23.0 (3.1 - 120.0)
5-Day Biochemical Oxygen Demand	mg/L	2.4 (0.9 - 5.5)	5.9 (2.1 - 22.0)	5.5 (1.4 - 16.0)
Chemical Oxygen Demand	mg/L	12 (5 - 21)	16 (9 - 220)	16 (6 - 55)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - 0.7)	<0.5 (<0.5 - <0.5)
<i>E. coli</i>	counts/ 100mL	5 996 (1 800 - 30 000)	22 863 (5 400 - 320 000)	20 669 (2 500 - 180 000)
Faecal Coliforms	counts/ 100mL	18 738 (3 700 - 260 000)	56 798 (13 000 - 570 000)	58 989 (12 000 - 560 000)
Ammonia-Nitrogen	mg/L	0.120 (0.073 - 0.400)	1.650 (0.120 - 6.300)	1.350 (0.470 - 3.100)
Nitrate-Nitrogen	mg/L	1.250 (0.420 - 1.900)	0.410 (<0.002 - 0.890)	0.615 (0.002 - 2.900)
Total Kjeldahl Nitrogen	mg/L	0.59 (0.29 - 1.00)	2.20 (0.38 - 16.00)	2.20 (0.73 - 5.10)
Orthophosphate Phosphorus	mg/L	0.190 (0.036 - 0.360)	0.185 (0.012 - 0.630)	0.160 (0.021 - 0.370)
Total Phosphorus	mg/L	0.31 (0.08 - 0.52)	0.35 (0.08 - 1.80)	0.33 (0.11 - 0.92)
Sulphide	mg/L	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - 0.04)	<0.02 (<0.02 - 0.04)
Aluminium	µg/L	<50 (<50 - 100)	<50 (<50 - <50)	<50 (<50 - 500)
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 - 2)
Copper	µg/L	1 (1 - 2)	1 (<1 - 2)	2 (<1 - 3)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - 2)
Zinc	µg/L	<10 (<10 - <10)	<10 (<10 - 20)	<10 (<10 - 20)
Flow	m ³ /s	0.154 (0.006 - 5.336)	0.235 (0.007 - 18.117)	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 2023

Parameter	Unit	<u>River Ganges</u>		
		GR1	GR2	GR3
Dissolved Oxygen	mg/L	8.3 (5.7 - 13.3)	5.3 (3.1 - 6.6)	7.1 (3.7 - 8.5)
pH		7.5 (7.1 - 8.1)	7.1 (7.0 - 7.4)	7.2 (7.0 - 7.6)
Suspended Solids	mg/L	17.5 (3.4 - 140.0)	16.0 (1.9 - 78.0)	30.5 (4.6 - 1400.0)
5-Day Biochemical Oxygen Demand	mg/L	7.1 (2.8 - 17.0)	3.9 (1.8 - 13.0)	2.2 (0.4 - 5.4)
Chemical Oxygen Demand	mg/L	21 (11 - 34)	18 (8 - 39)	14 (6 - 44)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - 0.7)
<i>E. coli</i>	counts/ 100mL	6 186 (2 000 - 110 000)	5 299 (270 - 61 000)	790 (18 - 12 000)
Faecal Coliforms	counts/ 100mL	26 975 (10 000 - 600 000)	20 849 (460 - 220 000)	11 073 (3 300 - 310 000)
Ammonia-Nitrogen	mg/L	3.100 (0.520 - 15.000)	5.000 (0.180 - 32.000)	0.145 (0.039 - 0.420)
Nitrate-Nitrogen	mg/L	1.250 (0.690 - 2.200)	1.030 (0.012 - 1.800)	0.215 (0.011 - 1.100)
Total Kjeldahl Nitrogen	mg/L	3.45 (1.10 - 15.00)	6.25 (1.40 - 35.00)	0.61 (0.15 - 2.10)
Orthophosphate Phosphorus	mg/L	0.310 (0.160 - 1.000)	0.330 (0.087 - 0.640)	0.005 (<0.002 - 0.010)
Total Phosphorus	mg/L	0.55 (0.32 - 1.40)	0.56 (0.28 - 1.50)	0.03 (<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 - 60)	<50 (<50 - 70)	<50 (<50 - 120)
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	3 (<1 - 6)	2 (<1 - 6)	<1 (<1 - 3)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - 10)	<10 (<10 - 20)	<10 (<10 - 10)
Flow	m³/s	0.042 (0.023 - 1.966)	0.119 (0.010 - 0.612)	0.021 (0.001 - 0.128)

- 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 2023 (Part 1 of 2)

Parameter	Unit	<u>Yuen Long Creek</u>	
		YL1	YL2
Dissolved Oxygen	mg/L	3.0 (1.6 - 7.7)	6.3 (3.5 - 8.6)
pH		7.1 (6.9 - 7.5)	7.4 (7.2 - 8.8)
Suspended Solids	mg/L	23.0 (5.8 - 260.0)	3.9 (1.2 - 69.0)
5-Day Biochemical Oxygen Demand	mg/L	17.0 (4.0 - 71.0)	7.4 (2.3 - 22.0)
Chemical Oxygen Demand	mg/L	34 (11 - 150)	18 (12 - 23)
Oil & Grease	mg/L	0.7 (<0.5 - 2.6)	<0.5 (<0.5 - <0.5)
<i>E. coli</i>	counts/ 100mL	296 386 (35 000 - 10 000 000)	113 976 (38 000 - 530 000)
Faecal Coliforms	counts/ 100mL	640 284 (120 000 - 10 000 000)	302 588 (92 000 - 750 000)
Ammonia-Nitrogen	mg/L	4.550 (1.100 - 20.000)	3.600 (0.970 - 6.900)
Nitrate-Nitrogen	mg/L	0.031 (<0.002 - 0.870)	0.970 (0.270 - 1.200)
Total Kjeldahl Nitrogen	mg/L	6.95 (2.20 - 31.00)	4.30 (1.80 - 7.40)
Orthophosphate Phosphorus	mg/L	0.550 (0.110 - 5.000)	0.290 (0.150 - 0.420)
Total Phosphorus	mg/L	1.11 (0.30 - 6.50)	0.42 (0.24 - 0.58)
Sulphide	mg/L	0.04 (<0.02 - 0.11)	<0.02 (<0.02 - 0.02)
Aluminium	µg/L	<50 (<50 - <50)	<50 (<50 - 280)
Cadmium	µg/L	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)
Chromium	µg/L	<1 (<1 - 2)	<1 (<1 - 4)
Copper	µg/L	1 (<1 - 7)	1 (<1 - 5)
Lead	µg/L	<1 (<1 - 2)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - 30)	10 (<10 - 40)
Flow	m ³ /s	0.303 (0.161 - 0.886)	0.017 (0.001 - 0.104)

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 2023 (Part 2 of 2)

Parameter	Unit	<u>Yuen Long Creek</u>	
		YL3	YL4
Dissolved Oxygen	mg/L	2.5 (1.9 - 6.9)	3.2 (1.5 - 5.5)
pH		7.2 (6.9 - 7.6)	7.3 (7.0 - 7.5)
Suspended Solids	mg/L	29.0 (5.0 - 160.0)	24.5 (2.4 - 150.0)
5-Day Biochemical Oxygen Demand	mg/L	55.5 (14.0 - 140.0)	71.0 (51.0 - 120.0)
Chemical Oxygen Demand	mg/L	57 (10 - 160)	47 (27 - 140)
Oil & Grease	mg/L	1.3 (<0.5 - 5.4)	1.7 (0.6 - 6.3)
<i>E. coli</i>	counts/ 100mL	1 304 789 (230 000 - 7 600 000)	1 166 470 (500 000 - 2 900 000)
Faecal Coliforms	counts/ 100mL	2 134 931 (590 000 - 9 600 000)	2 219 503 (800 000 - 5 000 000)
Ammonia-Nitrogen	mg/L	5.000 (1.100 - 19.000)	5.000 (1.200 - 7.100)
Nitrate-Nitrogen	mg/L	0.006 (<0.002 - 0.640)	<0.002 (<0.002 - 0.014)
Total Kjeldahl Nitrogen	mg/L	8.60 (1.90 - 25.00)	7.20 (3.10 - 11.00)
Orthophosphate Phosphorus	mg/L	0.395 (0.100 - 3.100)	0.405 (0.013 - 0.910)
Total Phosphorus	mg/L	0.94 (0.17 - 4.10)	0.71 (0.20 - 1.40)
Sulphide	mg/L	0.10 (<0.02 - 0.24)	0.10 (<0.02 - 0.30)
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 - 1)	<1 (<1 - <1)
Copper	µg/L	2 (1 - 4)	2 (1 - 3)
Lead	µg/L	<1 (<1 - 2)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - 20)	<10 (<10 - 20)
Flow	m ³ /s	0.480 (0.264 - 1.008)	0.168 (0.132 - 0.468)

- 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 2023

Parameter	Unit	<u>Kam Tin River</u>	
		KT1	KT2
Dissolved Oxygen	mg/L	5.9 (1.8 - 7.2)	3.8 (1.2 - 7.4)
pH		7.5 (7.3 - 7.9)	7.6 (7.3 - 7.9)
Suspended Solids	mg/L	9.4 (5.9 - 110.0)	15.5 (5.3 - 75.0)
5-Day Biochemical Oxygen Demand	mg/L	8.5 (4.1 - 29.0)	15.0 (5.2 - 53.0)
Chemical Oxygen Demand	mg/L	23 (13 - 46)	26 (14 - 120)
Oil & Grease	mg/L	<0.5 (<0.5 - 1.3)	0.6 (<0.5 - 5.1)
<i>E. coli</i>	counts/ 100mL	32 475 (8 000 - 150 000)	65 187 (28 000 - 190 000)
Faecal Coliforms	counts/ 100mL	157 082 (78 000 - 510 000)	215 166 (74 000 - 970 000)
Ammonia-Nitrogen	mg/L	3.450 (0.910 - 15.000)	7.200 (1.200 - 14.000)
Nitrate-Nitrogen	mg/L	1.200 (0.018 - 3.000)	0.380 (<0.002 - 1.000)
Total Kjeldahl Nitrogen	mg/L	4.70 (1.80 - 17.00)	8.50 (1.80 - 20.00)
Orthophosphate Phosphorus	mg/L	0.600 (0.280 - 2.800)	0.925 (0.260 - 1.600)
Total Phosphorus	mg/L	0.86 (0.38 - 3.50)	1.30 (0.38 - 2.90)
Sulphide	mg/L	<0.02 (<0.02 - 0.06)	0.03 (<0.02 - 0.11)
Aluminium	µg/L	<50 (<50 - 110)	<50 (<50 - <50)
Cadmium	µg/L	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)
Chromium	µg/L	<1 (<1 - 1)	<1 (<1 - 2)
Copper	µg/L	2 (<1 - 3)	2 (<1 - 4)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - 20)	<10 (<10 - 30)
Flow	m ³ /s	0.353 (0.086 - 16.788)	0.282 (0.080 - 11.926)

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 2023

Parameter	Unit	<u>Tin Shui Wai Nullah</u>		<u>Fairview Park Nullah</u>
		TSR1	TSR2	FVR1
Dissolved Oxygen	mg/L	6.9 (2.0 - 10.0)	8.9 (7.7 - 12.6)	5.4 (3.7 - 11.7)
pH		7.6 (7.4 - 8.1)	8.1 (7.8 - 9.5)	7.4 (7.1 - 8.5)
Suspended Solids	mg/L	8.8 (1.7 - 140.0)	9.2 (1.1 - 72.0)	11.5 (6.8 - 22.0)
5-Day Biochemical Oxygen Demand	mg/L	5.4 (1.9 - 9.8)	2.5 (0.3 - 12.0)	6.9 (3.0 - 13.0)
Chemical Oxygen Demand	mg/L	15 (8 - 36)	10 (4 - 22)	30 (9 - 70)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
<i>E. coli</i>	counts/ 100mL	62 834 (20 000 - 140 000)	32 003 (11 000 - 140 000)	25 146 (2 900 - 120 000)
Faecal Coliforms	counts/ 100mL	177 075 (81 000 - 350 000)	65 835 (19 000 - 620 000)	71 882 (14 000 - 440 000)
Ammonia-Nitrogen	mg/L	1.500 (0.490 - 6.500)	0.510 (0.140 - 2.900)	1.450 (0.450 - 2.800)
Nitrate-Nitrogen	mg/L	0.855 (0.350 - 1.600)	1.100 (0.470 - 1.500)	0.760 (0.340 - 1.200)
Total Kjeldahl Nitrogen	mg/L	2.55 (1.10 - 8.00)	1.20 (0.51 - 17.00)	2.40 (0.92 - 4.00)
Orthophosphate Phosphorus	mg/L	0.130 (0.062 - 0.390)	0.053 (0.010 - 0.130)	0.275 (0.095 - 0.530)
Total Phosphorus	mg/L	0.29 (0.13 - 0.55)	0.11 (0.04 - 0.23)	0.45 (0.12 - 0.73)
Sulphide	mg/L	<0.02 (<0.02 - 0.03)	<0.02 (<0.02 - <0.02)	<0.02 (<0.02 - 0.04)
Aluminium	µg/L	<50 (<50 - 60)	<50 (<50 - 90)	<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 - 13)	1 (<1 - 5)	2 (<1 - 2)
Lead	µg/L	<1 (<1 - 2)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - 30)	<10 (<10 - 30)	10 (<10 - 20)
Flow	m ³ /s	NM	0.118 (0.003 - 0.360)	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 2023

Parameter	Unit	<u>Ha Pak Nai Stream</u>		<u>Pak Nai Stream</u>	<u>Sheung Pak Nai Stream</u>
		DB1	DB3	DB5	
Dissolved Oxygen	mg/L	8.2 (7.6 - 10.4)	8.0 (7.2 - 10.0)	7.8 (5.8 - 10.2)	
pH		7.4 (6.9 - 8.1)	7.0 (6.8 - 7.3)	7.2 (7.1 - 7.8)	
Suspended Solids	mg/L	4.6 (0.8 - 43.0)	4.4 (0.8 - 21.0)	3.1 (0.8 - 5.4)	
5-Day Biochemical Oxygen Demand	mg/L	0.2 <td>0.1<br (<0.1="" -="" 0.9)<="" td=""/><td>0.5<br (<0.1="" -="" 3.2)<="" td=""/><td></td></td></td>	0.1 <td>0.5<br (<0.1="" -="" 3.2)<="" td=""/><td></td></td>	0.5 <td></td>	
Chemical Oxygen Demand	mg/L	4 <td>4<br (<2="" -="" 6)<="" td=""/><td>5 (2 - 13)</td><td></td></td>	4 <td>5 (2 - 13)</td> <td></td>	5 (2 - 13)	
Oil & Grease	mg/L	<0.5 <td><0.5<br <0.5)<="" (<0.5="" -="" td=""/><td><0.5<br <0.5)<="" (<0.5="" -="" td=""/><td></td></td></td>	<0.5 <td><0.5<br <0.5)<="" (<0.5="" -="" td=""/><td></td></td>	<0.5 <td></td>	
<i>E. coli</i>	counts/ 100mL	100 (18 - 280)	316 (100 - 1 100)	662 (50 - 9 000)	
Faecal Coliforms	counts/ 100mL	614 (110 - 3 200)	1 816 (400 - 13 000)	6 387 (320 - 170 000)	
Ammonia-Nitrogen	mg/L	0.008 <td>0.019 (0.013 - 0.039)</td> <td>0.031 (0.011 - 0.130)</td> <td></td>	0.019 (0.013 - 0.039)	0.031 (0.011 - 0.130)	
Nitrate-Nitrogen	mg/L	0.350 (0.250 - 0.480)	0.285 (0.190 - 0.360)	0.235 (0.074 - 0.310)	
Total Kjeldahl Nitrogen	mg/L	0.09 <td>0.12 (0.05 - 0.28)</td> <td>0.17 (0.06 - 0.81)</td> <td></td>	0.12 (0.05 - 0.28)	0.17 (0.06 - 0.81)	
Orthophosphate Phosphorus	mg/L	0.008 <td>0.008<br (<0.002="" -="" 0.013)<="" td=""/><td>0.012<br (<0.002="" -="" 0.017)<="" td=""/><td></td></td></td>	0.008 <td>0.012<br (<0.002="" -="" 0.017)<="" td=""/><td></td></td>	0.012 <td></td>	
Total Phosphorus	mg/L	<0.02 <td><0.02<br (<0.02="" -="" 0.03)<="" td=""/><td><0.02<br (<0.02="" -="" 0.11)<="" td=""/><td></td></td></td>	<0.02 <td><0.02<br (<0.02="" -="" 0.11)<="" td=""/><td></td></td>	<0.02 <td></td>	
Sulphide	mg/L	<0.02 <td><0.02<br <0.02)<="" (<0.02="" -="" td=""/><td><0.02<br <0.02)<="" (<0.02="" -="" td=""/><td></td></td></td>	<0.02 <td><0.02<br <0.02)<="" (<0.02="" -="" td=""/><td></td></td>	<0.02 <td></td>	
Aluminium	µg/L	60 <td><50<br (<50="" -="" 60)<="" td=""/><td><50<br <50)<="" (<50="" -="" td=""/><td></td></td></td>	<50 <td><50<br <50)<="" (<50="" -="" td=""/><td></td></td>	<50 <td></td>	
Cadmium	µg/L	<0.1 <td><0.1<br <0.1)<="" (<0.1="" -="" td=""/><td><0.1<br <0.1)<="" (<0.1="" -="" td=""/><td></td></td></td>	<0.1 <td><0.1<br <0.1)<="" (<0.1="" -="" td=""/><td></td></td>	<0.1 <td></td>	
Chromium	µg/L	<1 <td><1<br <1)<="" (<1="" -="" td=""/><td><1<br <1)<="" (<1="" -="" td=""/><td></td></td></td>	<1 <td><1<br <1)<="" (<1="" -="" td=""/><td></td></td>	<1 <td></td>	
Copper	µg/L	<1 <td><1<br <1)<="" (<1="" -="" td=""/><td><1<br <1)<="" (<1="" -="" td=""/><td></td></td></td>	<1 <td><1<br <1)<="" (<1="" -="" td=""/><td></td></td>	<1 <td></td>	
Lead	µg/L	<1 <td><1<br <1)<="" (<1="" -="" td=""/><td><1<br <1)<="" (<1="" -="" td=""/><td></td></td></td>	<1 <td><1<br <1)<="" (<1="" -="" td=""/><td></td></td>	<1 <td></td>	
Zinc	µg/L	<10 <td><10<br (<10="" -="" 10)<="" td=""/><td><10<br <10)<="" (<10="" -="" td=""/><td></td></td></td>	<10 <td><10<br <10)<="" (<10="" -="" td=""/><td></td></td>	<10 <td></td>	
Flow	m ³ /s	0.019 (0.003 - 0.069)	0.082 (0.004 - 0.331)	0.082 (0.021 - 0.528)	

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 2023

Parameter	Unit	Ngau Hom Sha Stream		Tai Shui Hang Stream	Tsang Kok Stream
		DB6	DB2	DB8	
Dissolved Oxygen	mg/L	8.2 (6.6 - 9.2)	7.7 (6.7 - 10.1)	8.3 (5.5 - 11.7)	
pH		7.2 (6.9 - 9.6)	7.6 (7.4 - 7.9)	8.0 (7.6 - 8.5)	
Suspended Solids	mg/L	3.4 (1.1 - 14.0)	1.8 (0.5 - 11.0)	7.7 (0.5 - 220.0)	
5-Day Biochemical Oxygen Demand	mg/L	0.7 (0.1 - 1.6)	0.2 (<0.1 - 2.0)	0.5 (<0.1 - 2.4)	
Chemical Oxygen Demand	mg/L	7 (2 - 10)	6 (<2 - 16)	8 (4 - 13)	
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	
<i>E. coli</i>	counts/ 100mL	188 (43 - 2 300)	170 (54 - 15 000)	233 (12 - 2 300)	
Faecal Coliforms	counts/ 100mL	3 325 (860 - 39 000)	1 066 (73 - 29 000)	1 457 (110 - 15 000)	
Ammonia-Nitrogen	mg/L	0.115 (0.069 - 0.180)	0.015 (<0.005 - 0.320)	0.084 (0.010 - 0.530)	
Nitrate-Nitrogen	mg/L	0.325 (0.140 - 0.420)	0.255 (0.051 - 0.540)	1.900 (0.450 - 3.300)	
Total Kjeldahl Nitrogen	mg/L	0.29 (0.13 - 0.48)	0.12 (0.07 - 0.46)	0.35 (0.18 - 0.99)	
Orthophosphate Phosphorus	mg/L	0.045 (0.028 - 0.150)	0.009 (<0.002 - 0.022)	0.014 (<0.002 - 0.016)	
Total Phosphorus	mg/L	0.13 (0.06 - 0.19)	<0.02 (<0.02 - 0.03)	0.02 (<0.02 - 0.03)	
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 - 90)	<50 (<50 - 60)	<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 - 1)	<1 (<1 - 2)	<1 (<1 - 2)	
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)	
Zinc	µg/L	<10 (<10 - <10)	<10 (<10 - 20)	<10 (<10 - <10)	
Flow	m ³ /s	0.011 (0.002 - 0.052)	0.138 (0.006 - 2.200)	0.006 (0.001 - 0.040)	

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 2023 (Part 1 of 2)

Parameter	Unit	<u>Mui Wo River</u>		
		MW1	MW2	MW3
Dissolved Oxygen	mg/L	8.1 (6.4 - 8.9)	8.4 (6.3 - 10.3)	8.4 (6.1 - 10.5)
pH		7.5 (7.0 - 7.7)	7.5 (7.0 - 8.0)	6.9 (6.6 - 7.2)
Suspended Solids	mg/L	1.8 (0.7 - 5.4)	4.0 (1.1 - 17.0)	1.7 (0.7 - 18.0)
5-Day Biochemical Oxygen Demand	mg/L	0.4 (<0.1 - 1.6)	0.9 (0.2 - 2.8)	0.3 (<0.1 - 3.5)
Chemical Oxygen Demand	mg/L	5 (3 - 14)	11 (3 - 25)	4 (3 - 9)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
<i>E. coli</i>	counts/ 100mL	1 037 (310 - 4 900)	2 785 (660 - 14 000)	261 (40 - 6 000)
Faecal Coliforms	counts/ 100mL	6 223 (770 - 21 000)	14 160 (4 100 - 120 000)	3 450 (120 - 30 000)
Ammonia-Nitrogen	mg/L	0.029 (0.010 - 0.160)	0.200 (0.036 - 2.100)	0.012 (<0.005 - 0.026)
Nitrate-Nitrogen	mg/L	0.305 (0.110 - 0.480)	0.315 (0.130 - 0.650)	0.275 (0.100 - 0.450)
Total Kjeldahl Nitrogen	mg/L	0.19 (0.10 - 0.37)	0.42 (0.26 - 2.40)	0.13 (0.07 - 0.22)
Orthophosphate Phosphorus	mg/L	0.063 (0.006 - 0.110)	0.049 (0.013 - 0.160)	0.037 (<0.002 - 0.064)
Total Phosphorus	mg/L	0.09 (0.06 - 0.12)	0.09 (0.04 - 0.29)	0.06 (0.03 - 0.08)
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 - 2)	<1 (<1 - <1)
Copper	µg/L	1 (<1 - 2)	<1 (<1 - 5)	<1 (<1 - <1)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - 30)	<10 (<10 - 10)	<10 (<10 - 20)
Flow	m ³ /s	0.106 (0.020 - 1.470)	NM	0.064 (0.003 - 0.288)

- 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 2023 (Part 2 of 2)

Parameter	Unit	<u>Mui Wo River</u>	
		MW4	MW5
Dissolved Oxygen	mg/L	6.9 (4.5 - 8.4)	7.9 (6.7 - 10.4)
pH		7.2 (6.4 - 8.0)	7.3 (7.0 - 7.9)
Suspended Solids	mg/L	9.1 (1.3 - 16.0)	3.7 (1.2 - 39.0)
5-Day Biochemical Oxygen Demand	mg/L	0.7 (<0.1 - 2.1)	1.0 (<0.1 - 2.3)
Chemical Oxygen Demand	mg/L	18 (7 - 26)	13 (4 - 34)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
<i>E. coli</i>	counts/ 100mL	611 (200 - 2 000)	2 794 (520 - 9 000)
Faecal Coliforms	counts/ 100mL	3 120 (360 - 11 000)	11 583 (1 100 - 49 000)
Ammonia-Nitrogen	mg/L	0.285 (0.093 - 1.300)	0.113 (0.028 - 0.340)
Nitrate-Nitrogen	mg/L	0.295 (0.110 - 0.590)	0.165 (0.088 - 0.360)
Total Kjeldahl Nitrogen	mg/L	0.68 (0.20 - 1.70)	0.37 (0.16 - 0.94)
Orthophosphate Phosphorus	mg/L	0.038 (<0.002 - 0.081)	0.026 (<0.002 - 0.047)
Total Phosphorus	mg/L	0.14 (0.06 - 0.22)	0.09 (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 - <50)
Cadmium	µg/L	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)
Chromium	µg/L	<1 (<1 - 2)	<1 (<1 - 2)
Copper	µg/L	2 (<1 - 4)	1 (<1 - 3)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - 20)	<10 (<10 - 20)
Flow	m ³ /s	0.071 (0.010 - 0.705)	0.030 (0.003 - 0.119)

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 2023

Parameter	Unit	<u>Tung Chung River</u>		
		TC1	TC2	TC3
Dissolved Oxygen	mg/L	7.9 (6.4 - 8.9)	7.9 (7.1 - 9.5)	8.0 (7.4 - 9.2)
pH		7.2 (6.7 - 7.4)	7.3 (7.0 - 7.7)	7.8 (7.3 - 8.1)
Suspended Solids	mg/L	1.3 (0.6 - 5.6)	4.1 (0.6 - 270.0)	2.7 (0.6 - 250.0)
5-Day Biochemical Oxygen Demand	mg/L	0.2 (<0.1 - 0.8)	0.5 (0.2 - 0.8)	7.0 (0.7 - 23.0)
Chemical Oxygen Demand	mg/L	6 (3 - 13)	6 (3 - 14)	12 (7 - 33)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - 2.1)
<i>E. coli</i>	counts/ 100mL	141 (24 - 670)	307 (110 - 900)	24 191 (6 600 - 100 000)
Faecal Coliforms	counts/ 100mL	1 517 (400 - 5 600)	1 744 (410 - 13 000)	75 199 (20 000 - 230 000)
Ammonia-Nitrogen	mg/L	0.012 (<0.005 - 0.021)	0.017 (0.006 - 0.034)	0.965 (0.150 - 2.600)
Nitrate-Nitrogen	mg/L	0.085 (0.002 - 0.160)	0.165 (0.018 - 0.340)	0.185 (0.110 - 0.340)
Total Kjeldahl Nitrogen	mg/L	0.12 (<0.05 - 0.24)	0.18 (0.07 - 0.32)	1.55 (0.43 - 3.10)
Orthophosphate Phosphorus	mg/L	0.008 (<0.002 - 0.015)	0.016 (<0.002 - 0.026)	0.076 (0.007 - 0.160)
Total Phosphorus	mg/L	<0.02 (<0.02 - 0.04)	0.03 (0.02 - 0.05)	0.17 (0.04 - 0.27)
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 - 20)	<10 (<10 - 20)	<10 (<10 - 20)
Flow	m ³ /s	0.052 (0.002 - 0.180)	0.217 (0.005 - 3.090)	0.048 (0.014 - 0.279)

- 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 2023 (Part 1 of 2)

Parameter	Unit	Tuen Mun River		
		TN1	TN2	TN3
Dissolved Oxygen	mg/L	4.2 (2.8 - 7.3)	7.2 (5.8 - 11.4)	5.3 (4.9 - 6.6)
pH		7.5 (7.3 - 7.7)	8.1 (7.5 - 10.6)	7.6 (7.3 - 8.1)
Suspended Solids	mg/L	9.7 (6.2 - 36.0)	10.6 (2.2 - 54.0)	3.8 (1.9 - 18.0)
5-Day Biochemical Oxygen Demand	mg/L	15.0 (8.4 - 38.0)	6.7 (1.5 - 26.0)	1.8 (0.9 - 6.5)
Chemical Oxygen Demand	mg/L	24 (17 - 44)	22 (10 - 39)	16 (7 - 32)
Oil & Grease	mg/L	<0.5 (<0.5 - 1.3)	<0.5 (<0.5 - 1.1)	<0.5 (<0.5 - <0.5)
<i>E. coli</i>	counts/ 100mL	89 674 (46 000 - 170 000)	72 099 (1 300 - 1 100 000)	8 803 (790 - 51 000)
Faecal Coliforms	counts/ 100mL	338 035 (170 000 - 1 000 000)	128 418 (4 400 - 1 200 000)	40 664 (9 000 - 220 000)
Ammonia-Nitrogen	mg/L	5.350 (2.500 - 9.400)	1.250 (0.450 - 8.200)	0.455 (0.370 - 0.650)
Nitrate-Nitrogen	mg/L	0.770 (<0.002 - 1.500)	1.200 (0.200 - 4.300)	0.495 (0.310 - 0.710)
Total Kjeldahl Nitrogen	mg/L	6.20 (3.40 - 11.00)	2.20 (0.98 - 9.90)	0.84 (0.60 - 1.10)
Orthophosphate Phosphorus	mg/L	0.430 (0.180 - 0.570)	0.125 (0.039 - 0.850)	0.025 (<0.002 - 0.070)
Total Phosphorus	mg/L	0.60 (0.39 - 1.10)	0.28 (0.13 - 1.10)	0.10 (0.06 - 0.18)
Sulphide	mg/L	<0.02 (<0.02 - 0.04)	<0.02 (<0.02 - 0.04)	<0.02 (<0.02 - <0.02)
Aluminium	µg/L	<50 (<50 - <50)	65 (<50 - 260)	<50 (<50 - 110)
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 - 7)	1 (<1 - 2)
Copper	µg/L	1 (<1 - 4)	2 (<1 - 4)	3 (1 - 4)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	10 (<10 - 40)	<10 (<10 - 10)	<10 (<10 - 50)
Flow	m³/s	0.257 (0.080 - 0.923)	0.022 (0.006 - 0.177)	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 2023 (Part 2 of 2)

Parameter	Unit	Tuen Mun River		
		TN4	TN5	TN6
Dissolved Oxygen	mg/L	5.6 (4.4 - 8.3)	5.3 (4.5 - 6.5)	5.4 (4.4 - 7.1)
pH		7.6 (7.4 - 8.0)	7.6 (7.3 - 8.1)	7.5 (7.2 - 8.3)
Suspended Solids	mg/L	3.9 (2.0 - 20.0)	5.1 (2.2 - 40.0)	4.5 (1.8 - 33.0)
5-Day Biochemical Oxygen Demand	mg/L	1.6 (0.6 - 8.0)	1.9 (1.0 - 4.9)	1.5 (0.3 - 3.4)
Chemical Oxygen Demand	mg/L	22 (7 - 30)	15 (7 - 25)	14 (7 - 29)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
<i>E. coli</i>	counts/ 100mL	24 034 (3 400 - 130 000)	13 128 (2 500 - 96 000)	<6 967 (<10 - 110 000)
Faecal Coliforms	counts/ 100mL	110 020 (14 000 - 1 300 000)	46 019 (9 900 - 460 000)	<24 325 (<10 - 310 000)
Ammonia-Nitrogen	mg/L	0.620 (0.220 - 1.100)	0.530 (0.350 - 0.880)	0.425 (0.330 - 0.800)
Nitrate-Nitrogen	mg/L	0.540 (0.290 - 0.850)	0.525 (0.310 - 0.750)	0.420 (0.280 - 0.530)
Total Kjeldahl Nitrogen	mg/L	1.00 (0.63 - 1.80)	0.94 (0.57 - 1.40)	0.81 (0.52 - 1.20)
Orthophosphate Phosphorus	mg/L	0.019 (<0.002 - 0.094)	0.027 (<0.002 - 0.084)	0.022 (<0.002 - 0.081)
Total Phosphorus	mg/L	0.11 (0.07 - 0.16)	0.11 (0.08 - 0.21)	0.10 (0.07 - 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 - 120)	<50 (<50 - 60)	<50 (<50 - 70)
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 (1 - 4)	3 (1 - 4)	3 (2 - 5)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - 10)	10 (<10 - 20)	10 (<10 - 20)
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 2023

Parameter	Unit	<u>Pai Min Kok (Anglers') Stream</u>		<u>Kau Wa Keng Stream</u>
		AN1	AN2	KW3
Dissolved Oxygen	mg/L	8.7 (7.7 - 9.6)	9.1 (8.0 - 11.7)	8.3 (7.3 - 9.0)
pH		7.9 (7.6 - 8.3)	8.1 (7.6 - 9.4)	7.2 (7.0 - 7.8)
Suspended Solids	mg/L	2.7 (1.1 - 20.0)	2.9 (2.0 - 18.0)	4.1 (0.9 - 15.0)
5-Day Biochemical Oxygen Demand	mg/L	1.1 (<0.1 - 20.0)	0.6 (<0.1 - 2.5)	1.8 (0.7 - 18.0)
Chemical Oxygen Demand	mg/L	10 (6 - 33)	10 (5 - 17)	12 (7 - 30)
Oil & Grease	mg/L	<0.5 (<0.5 - 2.0)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
<i>E. coli</i>	counts/ 100mL	8 939 (690 - 90 000)	8 927 (100 - 780 000)	41 410 (7 000 - 300 000)
Faecal Coliforms	counts/ 100mL	28 417 (2 000 - 410 000)	18 380 (750 - 1 000 000)	81 521 (33 000 - 400 000)
Ammonia-Nitrogen	mg/L	0.034 (0.005 - 0.270)	0.019 (0.006 - 0.810)	0.530 (0.095 - 1.600)
Nitrate-Nitrogen	mg/L	0.900 (0.430 - 1.700)	0.195 (<0.002 - 0.550)	2.500 (1.600 - 3.700)
Total Kjeldahl Nitrogen	mg/L	0.42 (0.24 - 1.50)	0.27 (0.11 - 1.40)	0.82 (0.35 - 2.20)
Orthophosphate Phosphorus	mg/L	0.028 (0.014 - 0.074)	0.030 (0.007 - 0.140)	0.050 (0.015 - 0.110)
Total Phosphorus	mg/L	0.07 (0.04 - 0.14)	0.07 (0.03 - 0.17)	0.11 (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 - 180)	55 (<50 - 280)	<50 (<50 - <50)
Cadmium	µg/L	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)	1.3 (0.2 - 4.0)
Chromium	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Copper	µg/L	2 (1 - 3)	2 (1 - 2)	1 (<1 - 2)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - 20)	<10 (<10 - 10)	155 (60 - 280)
Flow	m ³ /s	NM	0.002 (0.000 - 0.022)	0.014 (0.005 - 0.117)

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 2023

Parameter	Unit	<u>Sam Dip Tam Stream</u>		
		TW1	TW2	TW3
Dissolved Oxygen	mg/L	8.1 (7.4 - 9.0)	8.9 (7.8 - 9.8)	8.7 (7.6 - 9.5)
pH		7.7 (7.5 - 7.9)	8.1 (7.9 - 8.6)	7.8 (7.5 - 8.0)
Suspended Solids	mg/L	2.6 (1.3 - 16.0)	1.8 (0.7 - 4.2)	1.5 (0.8 - 12.0)
5-Day Biochemical Oxygen Demand	mg/L	0.9 (0.2 - 5.4)	1.0 (<0.1 - 2.7)	0.9 (<0.1 - 1.8)
Chemical Oxygen Demand	mg/L	8 (4 - 26)	7 (5 - 11)	8 (4 - 12)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
<i>E. coli</i>	counts/ 100mL	930 (160 - 38 000)	2 518 (670 - 31 000)	4 050 (700 - 31 000)
Faecal Coliforms	counts/ 100mL	22 058 (3 100 - 180 000)	6 630 (1 400 - 47 000)	17 388 (5 900 - 81 000)
Ammonia-Nitrogen	mg/L	0.011 (<0.005 - 0.029)	0.078 (0.041 - 0.170)	0.035 (0.026 - 0.078)
Nitrate-Nitrogen	mg/L	0.590 (0.380 - 1.300)	1.200 (1.000 - 1.600)	1.400 (1.100 - 1.800)
Total Kjeldahl Nitrogen	mg/L	0.23 (<0.05 - 0.33)	0.35 (0.19 - 0.58)	0.28 (<0.05 - 0.45)
Orthophosphate Phosphorus	mg/L	0.028 (0.014 - 0.054)	0.087 (0.020 - 0.120)	0.094 (0.046 - 0.130)
Total Phosphorus	mg/L	0.06 (0.04 - 0.09)	0.12 (0.07 - 0.16)	0.12 (0.07 - 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 - 60)	<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 - 3)
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	NM	0.083 (0.011 - 0.913)	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 2023 (Part 1 of 2)

Parameter	Unit	<u>Kai Tak River</u>		
		KN1	KN2	KN3
Dissolved Oxygen	mg/L	4.7 (3.4 - 5.3)	6.0 (5.1 - 6.6)	6.2 (5.5 - 6.9)
pH		7.2 (7.1 - 7.5)	7.3 (7.2 - 7.5)	7.3 (7.2 - 7.4)
Suspended Solids	mg/L	3.5 (0.9 - 37.0)	3.4 (1.6 - 7.5)	4.9 (3.5 - 20.0)
5-Day Biochemical Oxygen Demand	mg/L	1.8 (1.0 - 4.1)	3.6 (2.3 - 7.4)	4.5 (3.5 - 9.2)
Chemical Oxygen Demand	mg/L	21 (9 - 40)	29 (12 - 46)	35 (19 - 54)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
<i>E. coli</i>	counts/ 100mL	29 295 (6 000 - 120 000)	26 903 (5 800 - 250 000)	32 382 (8 000 - 380 000)
Faecal Coliforms	counts/ 100mL	97 265 (11 000 - 480 000)	71 946 (15 000 - 800 000)	78 645 (22 000 - 1 000 000)
Ammonia-Nitrogen	mg/L	1.750 (0.790 - 6.500)	1.950 (0.540 - 7.200)	1.800 (0.560 - 7.700)
Nitrate-Nitrogen	mg/L	2.300 (0.940 - 3.900)	3.050 (1.700 - 4.500)	3.150 (1.900 - 4.700)
Total Kjeldahl Nitrogen	mg/L	2.40 (1.70 - 7.40)	2.90 (1.20 - 7.50)	2.85 (1.30 - 11.00)
Orthophosphate Phosphorus	mg/L	0.680 (0.210 - 2.500)	0.810 (0.410 - 2.500)	0.825 (0.400 - 2.400)
Total Phosphorus	mg/L	0.81 (0.27 - 3.50)	0.98 (0.44 - 3.70)	1.03 (0.43 - 3.80)
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 - 2)	1 (<1 - 2)	<1 (<1 - 2)
Copper	µg/L	2 (2 - 3)	2 (1 - 3)	2 (2 - 3)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	10 (<10 - 20)	10 (<10 - 20)	10 (<10 - 30)
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 2023 (Part 2 of 2)

Parameter	Unit	<u>Kai Tak River</u>		
		KN4	KN5	KN7
Dissolved Oxygen	mg/L	6.6 (5.8 - 7.5)	7.1 (6.4 - 8.0)	7.1 (6.7 - 8.1)
pH		7.2 (7.0 - 7.4)	7.2 (7.0 - 7.4)	7.1 (6.9 - 7.3)
Suspended Solids	mg/L	9.9 (1.6 - 24.0)	10.5 (7.6 - 39.0)	8.9 (7.0 - 19.0)
5-Day Biochemical Oxygen Demand	mg/L	7.0 (2.1 - 20.0)	6.7 (2.9 - 15.0)	5.8 (3.7 - 15.0)
Chemical Oxygen Demand	mg/L	34 (14 - 66)	36 (18 - 55)	31 (18 - 55)
Oil & Grease	mg/L	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)	<0.5 (<0.5 - <0.5)
<i>E. coli</i>	counts/ 100mL	20 184 (5 600 - 180 000)	14 915 (3 300 - 190 000)	7 488 (2 300 - 180 000)
Faecal Coliforms	counts/ 100mL	51 752 (16 000 - 370 000)	34 736 (9 000 - 380 000)	15 081 (3 900 - 280 000)
Ammonia-Nitrogen	mg/L	1.550 (0.410 - 7.100)	1.075 (0.350 - 6.200)	1.005 (0.320 - 6.000)
Nitrate-Nitrogen	mg/L	3.550 (2.200 - 4.900)	3.850 (2.200 - 5.400)	3.950 (2.200 - 5.400)
Total Kjeldahl Nitrogen	mg/L	2.40 (1.70 - 8.30)	3.15 (1.10 - 8.30)	2.40 (1.50 - 7.50)
Orthophosphate Phosphorus	mg/L	0.785 (0.360 - 1.800)	0.785 (0.330 - 1.400)	0.820 (0.340 - 1.300)
Total Phosphorus	mg/L	0.98 (0.53 - 2.70)	0.99 (0.51 - 6.40)	0.96 (0.53 - 1.90)
Sulphide	mg/L	<0.02 (<0.02 - 0.03)	<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 (1 - 3)	2 (1 - 4)	2 (1 - 3)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	10 (10 - 20)	10 (10 - 30)	10 (<10 - 30)
Flow	m ³ /s	NM	11.824 (5.984 - 22.950)	3.205 (2.008 - 5.805)

- Notes:
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WQO compliance rates for rivers and streams in 2023

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	78%	83%	93%	100%	100%	91%
Lam Tsuen River	94%	94%	85%	100%	100%	95%
Tai Po River	67%	100%	100%	100%	100%	93%
Tai Po Kau Stream	100%	100%	100%	100%	100%	100%
Shan Liu Stream	100%	92%	100%	100%	100%	98%
Tung Tze Stream	100%	100%	92%	100%	100%	98%
Ho Chung River	100%	100%	100%	100%	100%	100%
Sha Kok Mei Stream	100%	92%	100%	100%	100%	98%
Tai Chung Hau Stream	96%	75%	96%	100%	100%	93%
Tseng Lan Shue Stream	100%	69%	97%	100%	100%	93%
Northwestern New Territories						
River Indus	100%	64%	56%	97%	100%	83%
River Beas	94%	36%	56%	97%	67%	70%
River Ganges	100%	33%	31%	83%	67%	63%
Yuen Long Creek	98%	2%	19%	38%	25%	36%
Kam Tin River	100%	0%	13%	63%	100%	55%
Tin Shui Wai Nullah	96%	63%	96%	88%	100%	88%
Fairview Park Nullah	100%	25%	58%	83%	100%	73%
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	92%	100%	100%	100%	100%	98%
Tsang Kok Stream	100%	100%	100%	100%	100%	100%
Lantau Island						
Mui Wo River	98%	100%	98%	100%	100%	99%
Tung Chung River	100%	78%	94%	100%	100%	94%
Southwestern New Territories and Kowloon						
Tuen Mun River	92%	68%	83%	93%	100%	87%
Pai Min Kok (Anglers') Stream	92%	96%	96%	100%	100%	97%
Kau Wa Keng Stream	100%	83%	100%	100%	100%	97%
Sam Dip Tam Stream	100%	97%	100%	100%	100%	99%
Kai Tak River	100%	56%	50%	97%	100%	81%
Average Compliance (All monitoring stations)	95%	73%	79%	94%	98%	87%

* 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