

Appendix 5.4a Predicted Water Quality at Key Water Sensitive Receivers (Annual)

Note: Shaded and Bolded - value exceeded the assessment criteria; N/A - Not Available

| Indicator Point ID (Ref: Figure 5.1) | Scenario | Depth Averaged | | | | | | | | | |
|--|--|-------------------------------|-------------------|--------|----------------------------|---------------|---------------|--------------|--------------|--------------|-----------------------|
| | | 10%ile / min. DO (mg/L) | mean | Change | Mean | | | | | | |
| | | | Salinity (ppt) | % | BOD ₅ (mg/L) | TIN (mg/L) | UIA (mg/L) | TN (mg/L) | TP (mg/L) | SS (mg/L) | E.coli (no./100mL) |
| Ecological/Fisheries Resources | | | | | | | | | | | |
| Assessment Criteria (for Deep Bay WCZ, Inner Marine Subzone) | | ≥ 4 (10%ile) | ±10% ambit | | N/A | ≤ 0.7 | ≤ 0.021 | N/A | N/A | ≤ 30% ambit | N/A |
| Mai Po Marshes SSSI (E1) | Scenario 1: Base Case | 2.8 | 10.3 | - | 14.8 | 9.59 | 0.258 | 12.4 | 1.19 | 48.6 | 299 |
| | Scenario 2: YLEPP Phase 1 | 3.2 | 11.1 | 8.0% | 13.6 | 7.92 | 0.193 | 10.5 | 1.13 | 44.6 | 73 |
| | Scenario 3: YLEPP Phase 2 | 4.2 | 11.2 | 9.2% | 12.0 | 6.30 | 0.113 | 8.1 | 1.05 | 41.5 | 19 |
| | Scenario 4: Emergency Discharge from YLEPP | 4.1 | 11.2 | 9.2% | 12.1 | 6.33 | 0.115 | 8.2 | 1.05 | 41.7 | 28 |
| Mai Po Inner Deep bay Ramsar Site / Inner Deep Bay SSSI (E2) | Scenario 1: Base Case | 5.2 | 11.5 | - | 13.3 | 7.02 | 0.162 | 9.4 | 0.78 | 42.2 | 37 |
| | Scenario 2: YLEPP Phase 1 | 5.3 | 11.8 | 2.0% | 12.7 | 6.21 | 0.135 | 8.5 | 0.74 | 40.2 | 32 |
| | Scenario 3: YLEPP Phase 2 | 5.5 | 11.7 | 1.7% | 12.2 | 5.58 | 0.108 | 7.6 | 0.71 | 39.1 | 26 |
| | Scenario 4: Emergency Discharge from YLEPP | 5.5 | 11.7 | 1.7% | 12.2 | 5.59 | 0.109 | 7.6 | 0.72 | 39.2 | 28 |
| Assessment Criteria (for Deep Bay WCZ, Mariculture Subzone) | | ≥ 5 (10%ile) | ±10% ambit | | N/A | ≤ 0.7 | ≤ 0.021 | N/A | N/A | ≤ 30% ambit | ≤ 610 |
| Oyster Culture Area (E3) | Scenario 1: Base Case | 5.2 | 13.4 | - | 5.7 | 2.61 | 0.042 | 3.5 | 0.31 | 24.5 | 37 |
| | Scenario 2: YLEPP Phase 1 | 5.3 | 13.4 | 0.1% | 5.7 | 2.43 | 0.037 | 3.3 | 0.31 | 24.3 | 37 |
| | Scenario 3: YLEPP Phase 2 | 5.4 | 13.4 | -0.1% | 5.7 | 2.35 | 0.034 | 3.2 | 0.31 | 24.3 | 37 |
| | Scenario 4: Emergency Discharge from YLEPP | 5.4 | 13.4 | -0.1% | 5.7 | 2.35 | 0.034 | 3.2 | 0.31 | 24.3 | 37 |
| Mangroves | | | | | | | | | | | |
| Assessment Criteria (for Deep Bay WCZ, Inner Marine Subzone) | | ≥ 4 (10%ile) | N/A | | N/A | ≤ 0.7 | ≤ 0.021 | N/A | N/A | N/A | N/A |
| Mangroves (Inner Deep Bay) (E4) | Scenario 1: Base Case | 4.1 | 11.2 | - | 12.3 | 7.62 | 0.185 | 9.9 | 0.86 | 41.3 | 104 |
| | Scenario 2: YLEPP Phase 1 | 4.3 | 11.7 | - | 11.7 | 6.48 | 0.144 | 8.6 | 0.82 | 38.9 | 42 |
| | Scenario 3: YLEPP Phase 2 | 4.9 | 11.7 | - | 10.9 | 5.51 | 0.100 | 7.2 | 0.78 | 37.0 | 20 |
| | Scenario 4: Emergency Discharge from YLEPP | 4.9 | 11.7 | - | 10.9 | 5.53 | 0.101 | 7.2 | 0.78 | 37.2 | 27 |
| Assessment Criteria (for Deep Bay WCZ, Yuen Long & Kam Tin (Lower) Subzone) | | ≥ 4 (min.) | N/A | | ≤ 5 | N/A | ≤ 0.021 | N/A | N/A | N/A | ≤ 1,000 |
| Mangrove (along Shan Pui River) (E5) | Scenario 1: Base Case | 1.6 | 8.0 | - | 17.0 | 12.75 | 0.361 | 15.9 | 1.52 | 53.9 | 11,528 |
| | Scenario 2: YLEPP Phase 1 | 2.0 | 10.3 | - | 14.0 | 9.24 | 0.218 | 11.9 | 1.42 | 45.5 | 484 |
| | Scenario 3: YLEPP Phase 2 | 2.6 | 10.6 | - | 11.5 | 7.40 | 0.111 | 9.0 | 1.26 | 38.1 | 115 |
| | Scenario 4: Emergency Discharge from YLEPP | 2.5 | 10.6 | - | 11.8 | 7.46 | 0.113 | 9.0 | 1.27 | 38.8 | 155 |
| EPD Routine Monitoring Station | | | | | | | | | | | |
| Assessment Criteria (for Deep Bay WCZ, Inner Marine Subzone) | | ≥ 4 (10%ile) | ±10% ambit | | N/A | ≤ 0.7 | ≤ 0.021 | N/A | N/A | ≤ 30% ambit | N/A |
| DM1 | Scenario 1: Base Case | 4.3 | 12.0 | - | 10.3 | 5.89 | 0.131 | 7.7 | 0.64 | 35.7 | 104 |
| | Scenario 2: YLEPP Phase 1 | 4.4 | 12.2 | 1.6% | 10.0 | 5.23 | 0.109 | 6.9 | 0.61 | 34.4 | 68 |
| | Scenario 3: YLEPP Phase 2 | 4.7 | 12.2 | 1.3% | 9.7 | 4.74 | 0.088 | 6.3 | 0.59 | 33.7 | 51 |
| | Scenario 4: Emergency Discharge from YLEPP | 4.7 | 12.2 | 1.3% | 9.7 | 4.75 | 0.088 | 6.3 | 0.60 | 33.7 | 57 |
| DM2 | Scenario 1: Base Case | 3.9 | 12.7 | - | 8.7 | 4.52 | 0.097 | 5.9 | 0.48 | 30.4 | 919 |
| | Scenario 2: YLEPP Phase 1 | 4.0 | 12.7 | 0.3% | 8.6 | 4.21 | 0.086 | 5.6 | 0.47 | 29.9 | 912 |
| | Scenario 3: YLEPP Phase 2 | 4.1 | 12.7 | -0.1% | 8.5 | 4.04 | 0.079 | 5.4 | 0.47 | 29.7 | 899 |
| | Scenario 4: Emergency Discharge from YLEPP | 4.1 | 12.7 | -0.1% | 8.5 | 4.05 | 0.079 | 5.4 | 0.47 | 29.7 | 899 |
| DM3 | Scenario 1: Base Case | 4.7 | 13.7 | - | 3.9 | 1.96 | 0.030 | 2.6 | 0.23 | 19.0 | 47 |
| | Scenario 2: YLEPP Phase 1 | 4.7 | 13.7 | 0.1% | 3.9 | 1.85 | 0.027 | 2.5 | 0.23 | 18.9 | 47 |
| | Scenario 3: YLEPP Phase 2 | 4.8 | 13.7 | -0.1% | 3.9 | 1.80 | 0.025 | 2.4 | 0.23 | 18.9 | 47 |
| | Scenario 4: Emergency Discharge from YLEPP | 4.8 | 13.7 | -0.1% | 3.9 | 1.81 | 0.025 | 2.4 | 0.23 | 18.9 | 47 |

Appendix 5.4b Predicted Water Quality at Key Water Sensitive Receivers (Dry Season)

| Indicator Point ID (Ref: Figure 5.1) | Scenario | Depth Averaged | | | | | | | | | |
|--|--|-------------------------|----------------|--------|-------------------------|------------|------------|-----------|-----------|-----------|--------------------|
| | | 10%ile / min. DO (mg/L) | min. - max. | | BOD ₅ (mg/L) | TIN (mg/L) | UIA (mg/L) | Mean | | | |
| | | | Salinity (ppt) | | | | | TN (mg/L) | TP (mg/L) | SS (mg/L) | E.coli (no./100mL) |
| Ecological/Fisheries Resources | | | | | | | | | | | |
| for Deep Bay WCZ, Inner Marine Subzone | | | | | | | | | | | |
| | | 10%ile | | | | | | | | | |
| Mai Po Marshes SSSI (E1) | Scenario 1: Base Case | 3.6 | 12.9 | - 17.3 | 14.3 | 11.19 | 0.174 | 14.5 | 1.24 | 54.5 | 1,691 |
| | Scenario 2: YLEPP Phase 1 | 4.5 | 14.1 | - 17.4 | 14.1 | 9.49 | 0.134 | 12.6 | 1.18 | 52.6 | 1,012 |
| | Scenario 3: YLEPP Phase 2 | 5.9 | 14.0 | - 17.3 | 13.1 | 8.15 | 0.096 | 10.5 | 1.09 | 49.7 | 147 |
| | Scenario 4: Emergency Discharge from YLEPP | 5.9 | 14.0 | - 17.3 | 13.1 | 8.18 | 0.097 | 10.5 | 1.09 | 50.0 | 211 |
| Mai Po Inner Deep bay Ramsar Site / Inner Deep Bay SSSI (E2) | Scenario 1: Base Case | 6.9 | 15.7 | - 18.3 | 13.3 | 9.81 | 0.156 | 12.8 | 0.99 | 50.5 | 418 |
| | Scenario 2: YLEPP Phase 1 | 7.4 | 15.9 | - 18.3 | 13.4 | 8.80 | 0.133 | 11.7 | 0.94 | 49.6 | 352 |
| | Scenario 3: YLEPP Phase 2 | 7.9 | 15.7 | - 18.2 | 13.2 | 8.16 | 0.115 | 10.8 | 0.91 | 48.8 | 237 |
| | Scenario 4: Emergency Discharge from YLEPP | 7.8 | 15.7 | - 18.2 | 13.2 | 8.18 | 0.116 | 10.8 | 0.91 | 48.9 | 254 |
| for Deep Bay WCZ, Mariculture Subzone | | | | | | | | | | | |
| | | 10%ile | | | | | | | | | |
| Oyster Culture Area (E3) | Scenario 1: Base Case | 8.4 | 18.1 | - 19.7 | 6.2 | 3.53 | 0.038 | 4.7 | 0.39 | 32.1 | 125 |
| | Scenario 2: YLEPP Phase 1 | 8.6 | 18.1 | - 19.6 | 6.3 | 3.29 | 0.033 | 4.4 | 0.38 | 32.0 | 125 |
| | Scenario 3: YLEPP Phase 2 | 8.7 | 18.0 | - 19.6 | 6.4 | 3.21 | 0.031 | 4.3 | 0.38 | 32.0 | 124 |
| | Scenario 4: Emergency Discharge from YLEPP | 8.7 | 18.0 | - 19.6 | 6.4 | 3.21 | 0.031 | 4.3 | 0.38 | 32.0 | 125 |
| Mangroves | | | | | | | | | | | |
| for Deep Bay WCZ, Inner Marine Subzone | | | | | | | | | | | |
| | | 10%ile | | | | | | | | | |
| Mangroves (Inner Deep Bay) (E4) | Scenario 1: Base Case | 4.8 | 13.8 | - 18.1 | 11.9 | 9.54 | 0.142 | 12.2 | 1.00 | 48.2 | 683 |
| | Scenario 2: YLEPP Phase 1 | 5.8 | 14.8 | - 18.2 | 11.9 | 8.26 | 0.114 | 10.8 | 0.95 | 46.9 | 454 |
| | Scenario 3: YLEPP Phase 2 | 6.9 | 14.6 | - 18.1 | 11.4 | 7.34 | 0.088 | 9.5 | 0.89 | 45.1 | 147 |
| | Scenario 4: Emergency Discharge from YLEPP | 6.9 | 14.6 | - 18.1 | 11.5 | 7.37 | 0.088 | 9.5 | 0.89 | 45.3 | 195 |
| for Deep Bay WCZ, Yuen Long & Kam Tin (Lower) Subzone | | | | | | | | | | | |
| | | min. | | | | | | | | | |
| Mangrove (along Shan Pui River) (E5) | Scenario 1: Base Case | 2.2 | 8.3 | - 16.8 | 16.5 | 13.65 | 0.225 | 17.2 | 1.41 | 54.5 | 16,442 |
| | Scenario 2: YLEPP Phase 1 | 3.3 | 11.6 | - 17.1 | 14.5 | 10.25 | 0.141 | 13.4 | 1.31 | 49.9 | 3,119 |
| | Scenario 3: YLEPP Phase 2 | 4.5 | 11.3 | - 16.9 | 12.8 | 8.64 | 0.089 | 10.7 | 1.19 | 43.9 | 412 |
| | Scenario 4: Emergency Discharge from YLEPP | 4.4 | 11.3 | - 16.9 | 13.0 | 8.69 | 0.091 | 10.7 | 1.20 | 44.4 | 550 |
| EPD Routine Monitoring Station | | | | | | | | | | | |
| for Deep Bay WCZ, Inner Marine Subzone | | | | | | | | | | | |
| | | 10%ile | | | | | | | | | |
| DM1 | Scenario 1: Base Case | 6.1 | 15.1 | - 18.9 | 10.0 | 7.64 | 0.108 | 9.8 | 0.79 | 43.4 | 586 |
| | Scenario 2: YLEPP Phase 1 | 6.8 | 15.8 | - 18.9 | 10.2 | 6.84 | 0.091 | 8.9 | 0.75 | 42.7 | 472 |
| | Scenario 3: YLEPP Phase 2 | 7.5 | 15.6 | - 18.8 | 10.1 | 6.34 | 0.077 | 8.2 | 0.72 | 41.8 | 310 |
| | Scenario 4: Emergency Discharge from YLEPP | 7.5 | 15.6 | - 18.8 | 10.1 | 6.35 | 0.077 | 8.2 | 0.72 | 41.9 | 350 |
| DM2 | Scenario 1: Base Case | 6.2 | 17.2 | - 19.4 | 8.1 | 5.60 | 0.072 | 7.2 | 0.59 | 37.3 | 2,769 |
| | Scenario 2: YLEPP Phase 1 | 6.5 | 17.3 | - 19.4 | 8.3 | 5.23 | 0.064 | 6.8 | 0.57 | 37.0 | 2,758 |
| | Scenario 3: YLEPP Phase 2 | 6.8 | 17.1 | - 19.4 | 8.4 | 5.08 | 0.060 | 6.6 | 0.56 | 36.9 | 2,714 |
| | Scenario 4: Emergency Discharge from YLEPP | 6.7 | 17.1 | - 19.4 | 8.3 | 5.09 | 0.060 | 6.6 | 0.56 | 36.9 | 2,715 |
| DM3 | Scenario 1: Base Case | 7.2 | 18.1 | - 20.4 | 3.9 | 2.53 | 0.025 | 3.3 | 0.28 | 25.3 | 152 |
| | Scenario 2: YLEPP Phase 1 | 7.3 | 18.1 | - 20.4 | 4.0 | 2.39 | 0.022 | 3.1 | 0.27 | 25.3 | 152 |
| | Scenario 3: YLEPP Phase 2 | 7.3 | 18.0 | - 20.4 | 4.1 | 2.35 | 0.0209 | 3.1 | 0.27 | 25.3 | 152 |
| | Scenario 4: Emergency Discharge from YLEPP | 7.3 | 18.0 | - 20.4 | 4.1 | 2.35 | 0.0209 | 3.1 | 0.27 | 25.3 | 152 |

Appendix 5.4c Predicted Water Quality at Key Water Sensitive Receivers (Wet Season)

| Indicator Point ID (Ref: Figure 5.1) | Scenario | Depth Averaged | | | | | | | | |
|--|--|-------------------------|----------------------------|-------------------------|------------|------------|-----------|-----------|-----------|--------------------|
| | | 10%ile / min. DO (mg/L) | min. - max. Salinity (ppt) | Mean | | | | | | |
| | | | | BOD ₅ (mg/L) | TIN (mg/L) | UIA (mg/L) | TN (mg/L) | TP (mg/L) | SS (mg/L) | E.coli (no./100mL) |
| Ecological/Fisheries Resources | | | | | | | | | | |
| for Deep Bay WCZ, Inner Marine Subzone | | | | | | | | | | |
| | | 10%ile | | | | | | | | |
| Mai Po Marshes SSSI (E1) | Scenario 1: Base Case | 2.6 | 2.8 - 6.4 | 15.2 | 7.98 | 0.342 | 10.3 | 1.13 | 42.6 | 53 |
| | Scenario 2: YLEPP Phase 1 | 2.9 | 4.5 - 6.8 | 13.2 | 6.35 | 0.251 | 8.4 | 1.08 | 36.7 | 5 |
| | Scenario 3: YLEPP Phase 2 | 3.9 | 5.3 - 6.9 | 10.9 | 4.44 | 0.130 | 5.8 | 1.01 | 33.2 | 3 |
| | Scenario 4: Emergency Discharge from YLEPP | 3.8 | 5.3 - 6.9 | 11.0 | 4.48 | 0.133 | 5.8 | 1.02 | 33.5 | 4 |
| Mai Po Inner Deep bay Ramsar Site / Inner Deep Bay SSSI (E2) | Scenario 1: Base Case | 4.9 | 5.4 - 7.5 | 13.2 | 4.24 | 0.169 | 6.1 | 0.56 | 34.0 | 3 |
| | Scenario 2: YLEPP Phase 1 | 5.0 | 6.0 - 7.6 | 12.0 | 3.63 | 0.137 | 5.3 | 0.54 | 30.8 | 3 |
| | Scenario 3: YLEPP Phase 2 | 5.2 | 6.2 - 7.6 | 11.2 | 2.99 | 0.101 | 4.4 | 0.52 | 29.3 | 3 |
| | Scenario 4: Emergency Discharge from YLEPP | 5.2 | 6.2 - 7.6 | 11.2 | 3.01 | 0.102 | 4.5 | 0.53 | 29.4 | 3 |
| for Deep Bay WCZ, Mariculture Subzone | | | | | | | | | | |
| | | 10%ile | | | | | | | | |
| Oyster Culture Area (E3) | Scenario 1: Base Case | 5.1 | 7.3 - 9.7 | 5.3 | 1.69 | 0.047 | 2.4 | 0.23 | 16.9 | 11 |
| | Scenario 2: YLEPP Phase 1 | 5.2 | 7.3 - 9.7 | 5.1 | 1.57 | 0.042 | 2.2 | 0.23 | 16.5 | 11 |
| | Scenario 3: YLEPP Phase 2 | 5.3 | 7.3 - 9.7 | 5.1 | 1.49 | 0.038 | 2.1 | 0.23 | 16.5 | 11 |
| | Scenario 4: Emergency Discharge from YLEPP | 5.3 | 7.3 - 9.7 | 5.1 | 1.49 | 0.038 | 2.2 | 0.23 | 16.5 | 11 |
| Mangroves | | | | | | | | | | |
| for Deep Bay WCZ, Inner Marine Subzone | | | | | | | | | | |
| | | 10%ile | | | | | | | | |
| Mangroves (Inner Deep Bay) (E4) | Scenario 1: Base Case | 3.9 | 4.1 - 7.2 | 12.8 | 5.71 | 0.228 | 7.5 | 0.73 | 34.4 | 16 |
| | Scenario 2: YLEPP Phase 1 | 4.1 | 5.5 - 7.4 | 11.4 | 4.70 | 0.175 | 6.3 | 0.70 | 30.8 | 4 |
| | Scenario 3: YLEPP Phase 2 | 4.8 | 6.0 - 7.4 | 10.3 | 3.67 | 0.112 | 5.0 | 0.66 | 29.0 | 3 |
| | Scenario 4: Emergency Discharge from YLEPP | 4.7 | 6.0 - 7.4 | 10.4 | 3.69 | 0.113 | 5.0 | 0.67 | 29.1 | 4 |
| for Deep Bay WCZ, Yuen Long & Kam Tin (Lower) Subzone | | | | | | | | | | |
| | | min. | | | | | | | | |
| Mangrove (along Shan Pui River) (E5) | Scenario 1: Base Case | 1.6 | 1.7 - 6.2 | 17.5 | 11.86 | 0.498 | 14.6 | 1.64 | 53.2 | 8,082 |
| | Scenario 2: YLEPP Phase 1 | 2.0 | 4.8 - 7.1 | 13.4 | 8.23 | 0.294 | 10.4 | 1.53 | 41.1 | 75 |
| | Scenario 3: YLEPP Phase 2 | 2.6 | 5.8 - 8.1 | 10.3 | 6.17 | 0.132 | 7.2 | 1.34 | 32.3 | 32 |
| | Scenario 4: Emergency Discharge from YLEPP | 2.5 | 5.8 - 8.1 | 10.5 | 6.23 | 0.136 | 7.3 | 1.35 | 33.1 | 43 |
| EPD Routine Monitoring Station | | | | | | | | | | |
| for Deep Bay WCZ, Inner Marine Subzone | | | | | | | | | | |
| | | 10%ile | | | | | | | | |
| DM1 | Scenario 1: Base Case | 4.2 | 5.2 - 8.3 | 10.6 | 4.14 | 0.154 | 5.6 | 0.49 | 28.0 | 19 |
| | Scenario 2: YLEPP Phase 1 | 4.3 | 6.1 - 8.3 | 9.8 | 3.62 | 0.127 | 4.9 | 0.48 | 26.2 | 10 |
| | Scenario 3: YLEPP Phase 2 | 4.6 | 6.5 - 8.3 | 9.3 | 3.14 | 0.099 | 4.3 | 0.47 | 25.5 | 8 |
| | Scenario 4: Emergency Discharge from YLEPP | 4.6 | 6.5 - 8.3 | 9.3 | 3.16 | 0.100 | 4.3 | 0.47 | 25.5 | 9 |
| DM2 | Scenario 1: Base Case | 3.7 | 5.8 - 9.1 | 9.2 | 3.44 | 0.121 | 4.6 | 0.38 | 23.4 | 305 |
| | Scenario 2: YLEPP Phase 1 | 3.9 | 5.9 - 9.1 | 8.8 | 3.19 | 0.108 | 4.3 | 0.37 | 22.7 | 302 |
| | Scenario 3: YLEPP Phase 2 | 4.0 | 6.0 - 9.1 | 8.7 | 3.00 | 0.098 | 4.1 | 0.37 | 22.5 | 298 |
| | Scenario 4: Emergency Discharge from YLEPP | 4.0 | 6.0 - 9.1 | 8.7 | 3.01 | 0.098 | 4.1 | 0.37 | 22.5 | 298 |
| DM3 | Scenario 1: Base Case | 4.5 | 7.0 - 10.5 | 3.8 | 1.39 | 0.036 | 1.9 | 0.18 | 12.8 | 14 |
| | Scenario 2: YLEPP Phase 1 | 4.6 | 7.1 - 10.5 | 3.7 | 1.31 | 0.032 | 1.8 | 0.18 | 12.6 | 14 |
| | Scenario 3: YLEPP Phase 2 | 4.7 | 7.1 - 10.5 | 3.7 | 1.26 | 0.030 | 1.8 | 0.18 | 12.6 | 14 |
| | Scenario 4: Emergency Discharge from YLEPP | 4.7 | 7.1 - 10.5 | 3.7 | 1.26 | 0.030 | 1.8 | 0.18 | 12.6 | 14 |