APPENDIX 3B   ASSESSMENT OF CARRYING CAPACITY OF THE PROJECT SITE

CONSULTANCY REF.: AFCD/FIS/02/19 CONSULTANCY SERVICE
FOR ENVIRONMENTAL IMPACT ASSESSMENT STUDY FOR
DESIGNATION OF NEW FISH CULTURE ZONES
**Environmental Impact Assessment (EIA) Report for Establishment
of** Fish Culture Zone at Wong Chuk Kok Hoi

ASSESSMENT OF CARRYING CAPACITY OF THE PROJECT SITE

3B.1   Assessment of Carrying Capacity of The Project site

This *Appendix* details the findings for carrying capacity assessment for the Project site, which has been conducted in accordance with the agreed *Water Quality Modelling Plan*.
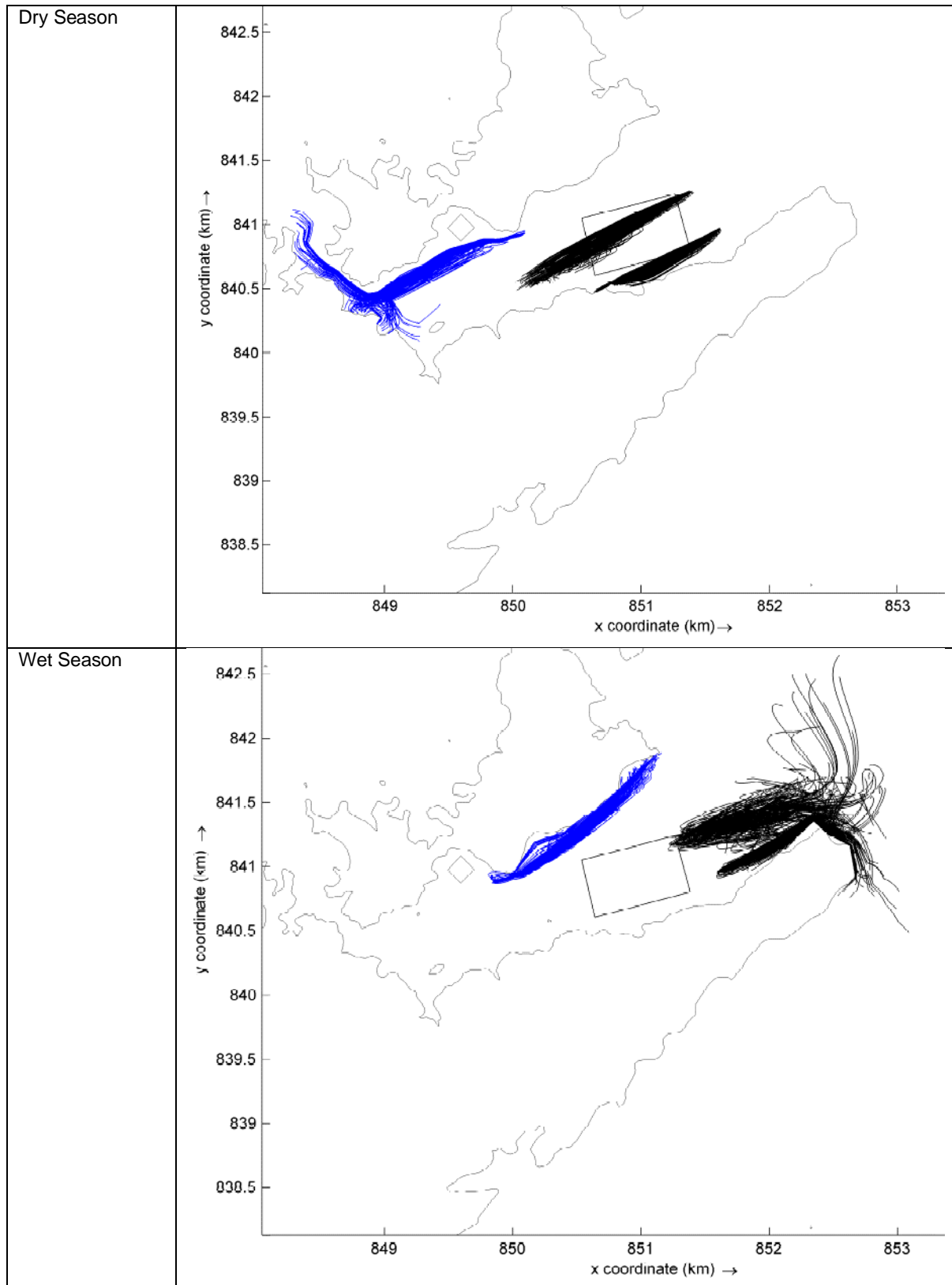
3B.1.1 Flushing Time Estimation

For flushing rate estimation, hydrodynamic modelling scenarios were conducted using Delft3D FLOW to achieve the following:

- Determination of initial dye area; and

- Estimation of flushing time of the Project site.

For the determination of initial dye area, one (1) modelling scenario would be conducted for each of the wet season and dry season. Drogues were released at 2-hour interval from near the boundary and corners of the Project site and the nearby surrogate site for a period of 15-day. The resulted drogue tracks were reviewed to determine the tidal excursion and the immediate proximity suitable for setting up initial tracer for tracer dispersion modelling to determine system-wide flushing time. Drogue tracks for the simulation of drogue release from the Project site and the nearby surrogate site of Wong Wan FCZ are shown in *Figure 3B.1.1*. The drogue tracks indicate current velocity within the Wong Chuk Kok Hoi is rather low in both seasons. In the dry season, drogues tend to move into the embayment while in the wet season, they tend to move out of the embayment. Drogues typically move only for less than 2 km from the locations they are released within one flood-ebb cycle.

**CONSULTANCY REF.: AFCD/FIS/02/19 CONSULTANCY SERVICE
FOR ENVIRONMENTAL IMPACT ASSESSMENT STUDY FOR
DESIGNATION OF NEW FISH CULTURE ZONES**
ASSESSMENT OF CARRYING CAPACITY OF THE PROJECT SITE
Environmental Impact Assessment (EIA) Report for Establishment
of Fish Culture Zone at Wong Chuk Kok Hoi

Figure 3B.1.1 Drogue Tracks from Wong Wan FCZ (Blue) and Project site (Black) in Dry (Top) and Wet (Bottom) Seasons
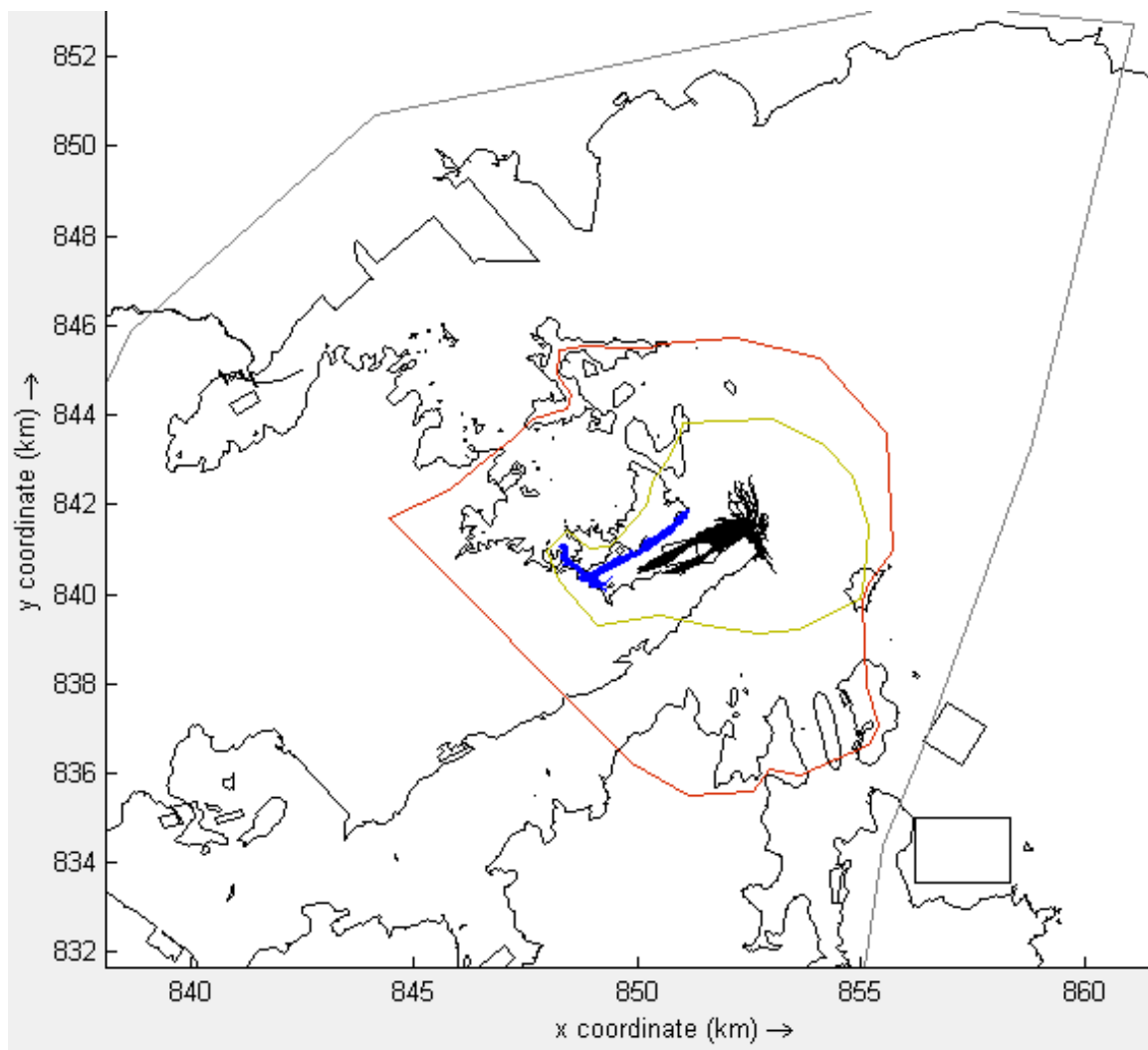
**CONSULTANCY REF.: AFCD/FIS/02/19 CONSULTANCY SERVICE
FOR ENVIRONMENTAL IMPACT ASSESSMENT STUDY FOR
DESIGNATION OF NEW FISH CULTURE ZONES**
**Environmental Impact Assessment (EIA) Report for Establishment
of** Fish Culture Zone at Wong Chuk Kok Hoi

ASSESSMENT OF CARRYING CAPACITY OF THE PROJECT SITE

A number of sensitivity tests of tracer dispersion modelling exercise were conducted to evaluate the effect of different interpretation of the drogue simulation results. *Figure 3B.1.2* shows three initial tracer settings for sensitivity tests:

■ Scenario 1 (green polygon) is a very restrictive read of the drogue track results. In this scenario, the initial tracer covers only an area within a short distance from all drogue tracks including the entire Wong Chuk Kok Hoi as well as its NE opening and its other end at Hung Shek Mun;

■ Scenario 2 (red polygon) is a more expansive interpretation, with the entire Double Haven, a portion of the outer Tolo Channel, as well as the coverage under Scenario 1; and

■ Scenario 3 (grey polygon) is even more expansive interpretation and considers all part of the inner Mirs Bay and Tolo Harbour embayment "behind" (in the sense relative to opening of the Mirs Bay in the SE) to be covered with tracer.

These three scenarios essentially differ by the interpretations on where "clean" water beyond the influence of Project site (as well as other pollution sources) starts. The average tracer decay curves (for seven cases), together with the corresponding best fit curves, for the three different scenarios in both seasons are shown in *Figure 3B.1.3* and *Figure 3B.1.4*.

Figure 3B.1.2   Drogue Tracks and Initial Tracer Settings for Sensitivity Tests

CONSULTANCY REF.: AFCD/FIS/02/19 CONSULTANCY SERVICE FOR ENVIRONMENTAL IMPACT ASSESSMENT STUDY FOR DESIGNATION OF NEW FISH CULTURE ZONES
Environmental Impact Assessment (EIA) Report for Establishment of Fish Culture Zone at Wong Chuk Kok Hoi
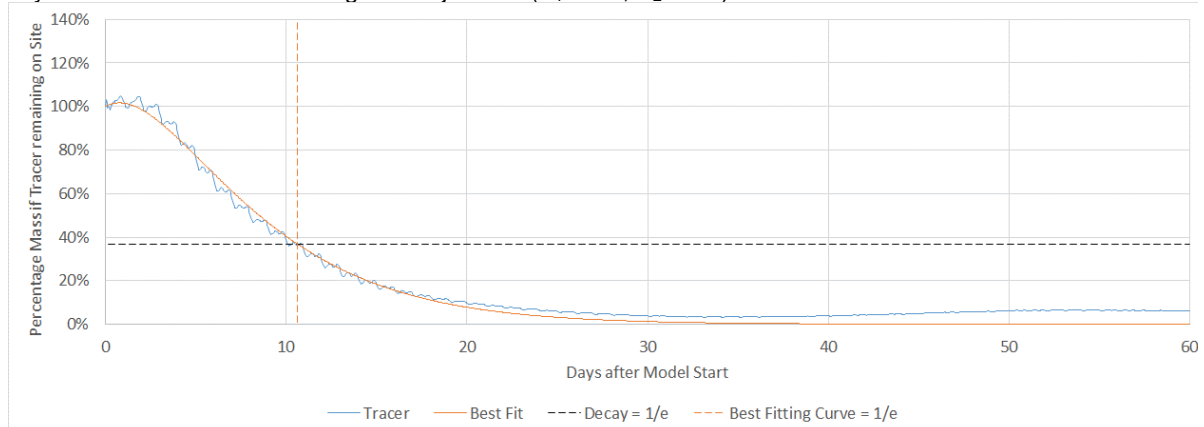
ASSESSMENT OF CARRYING CAPACITY OF THE PROJECT SITE

Figure 3B.1.3   Average Tracer Decay Curve at Project Site for Three Scenarios in Dry Season (Horizontal dashed line indicates tracer mass at a fraction of e [base of natural logarithm], vertical dashed line indicates estimated flushing time)

Dry Season – Scenario 1 Average of Project site (K_1: 0.42, K_2: 0.37)
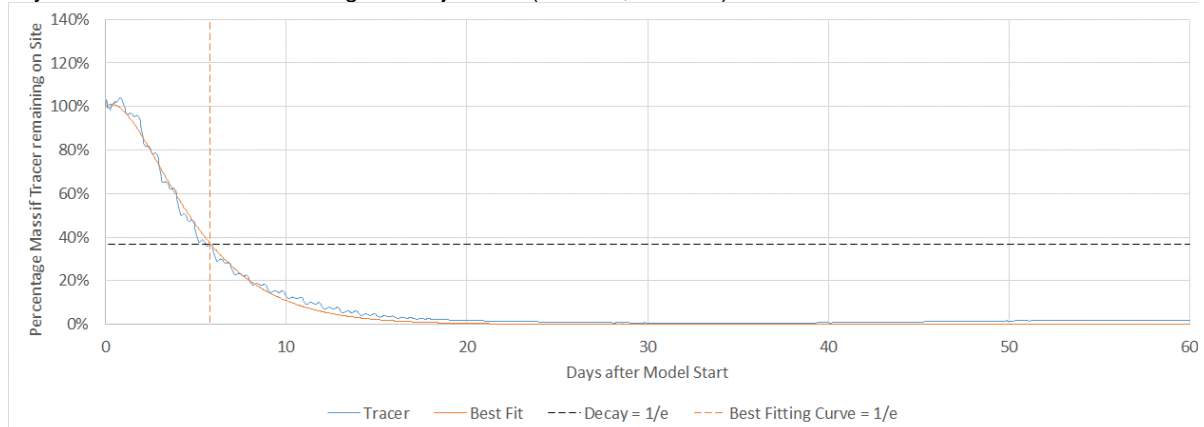
Dry Season – Scenario 2 Average of Project site (K_1: 0.25, K_2: 0.20)

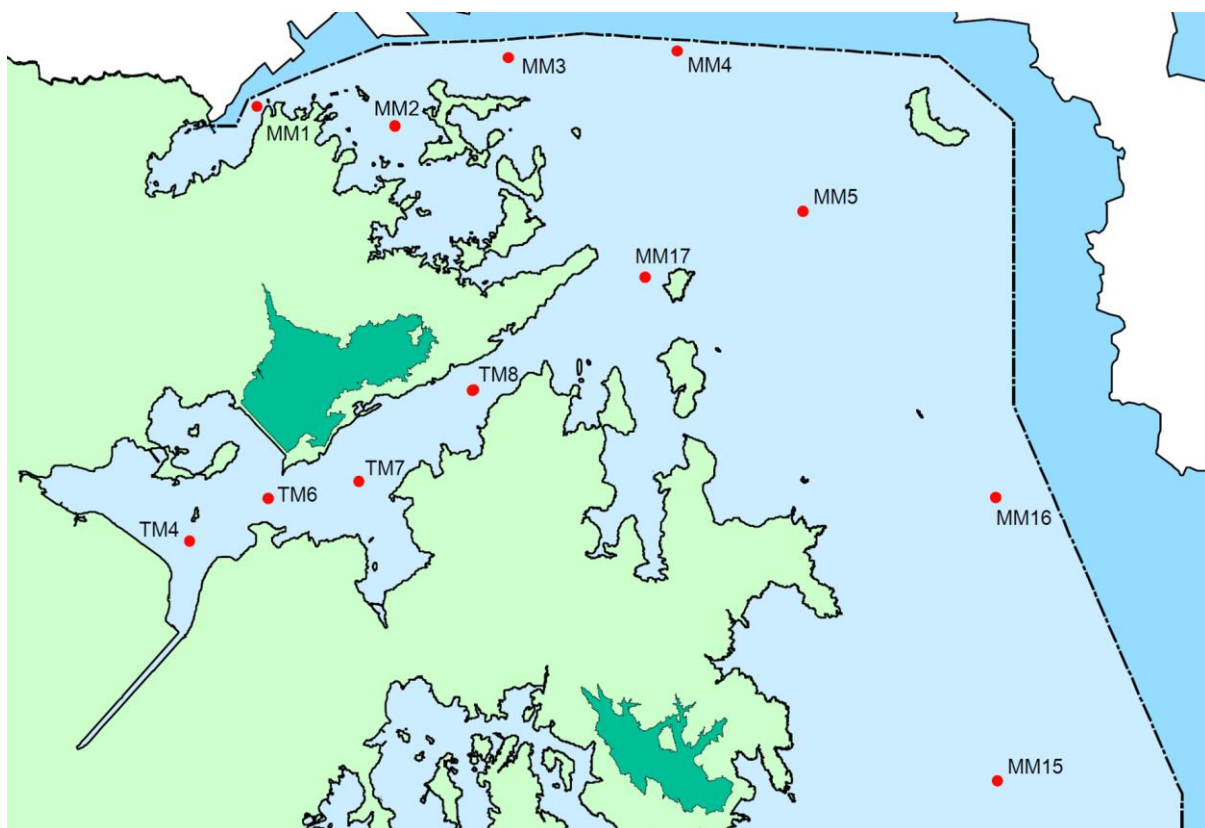Dry Season – Scenario 3 Average of Project site (K_1: 0.04, K_2: 0.03)

CONSULTANCY REF.: AFCD/FIS/02/19 CONSULTANCY SERVICE FOR ENVIRONMENTAL IMPACT ASSESSMENT STUDY FOR DESIGNATION OF NEW FISH CULTURE ZONES
Environmental Impact Assessment (EIA) Report for Establishment **of** Fish Culture Zone at Wong Chuk Kok Hoi

ASSESSMENT OF CARRYING CAPACITY OF THE PROJECT SITE
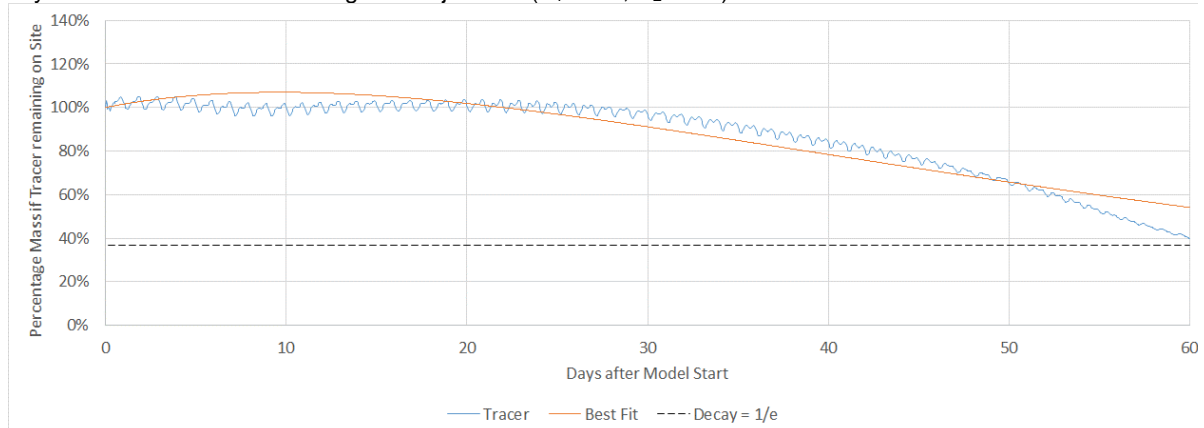
Figure 3B.1.4   Average Tracer Decay Curve at Project Site for Three Scenarios in Wet Season (Horizontal dashed line indicates tracer mass at a fraction of e [base of natural logarithm], vertical dashed line indicates estimated flushing time)

Wet Season – Scenario 1 Average of Project site (K_1: 0.48, K_2: 0.45)
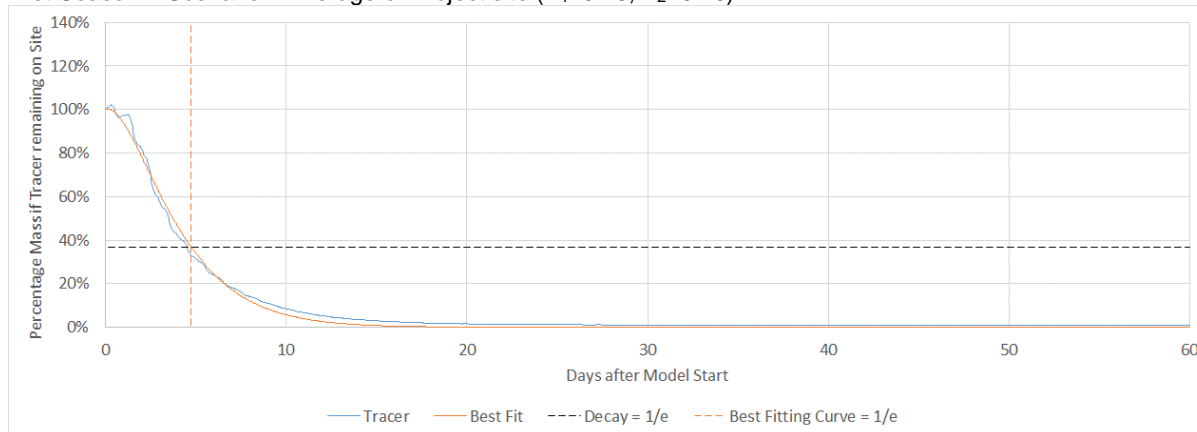
Wet Season – Scenario 2 Average of Project site (K_1: 0.26, K_2: 0.26)
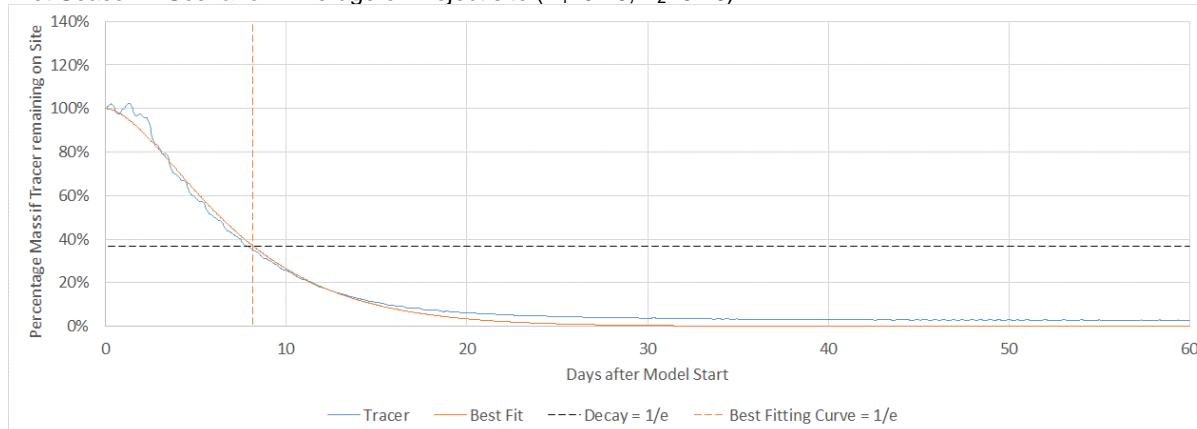
Wet Season – Scenario 3 Average of Project site (K_1: 0.15, K_2: 0.18)
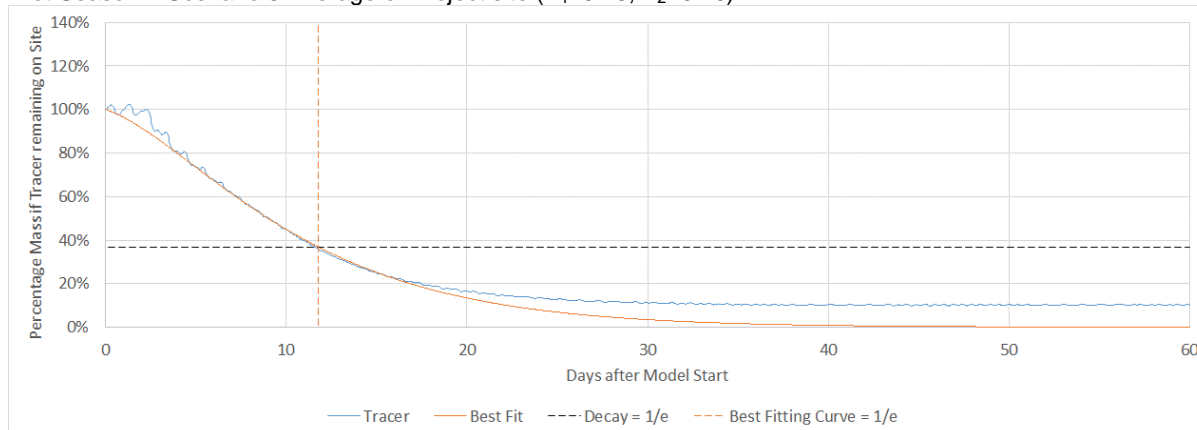
As shown, the expansion of initial tracer area from Scenario 1 to Scenario 2 result only in a modest increase in flushing time. On the other hand, the decay of tracer in Scenario 3 is much slower than that in Scenarios 1 and 2, as a result of tracer from within the Tolo Harbour keeping the tracer level at the vicinity of the Project site high, thus reducing the flushing and dilution of Wong Chuk Kok Hoi significantly. This seems to indicate assuming the entire Tolo Harbour-Mirs Bay embayment be covered with tracer be an overestimation.

**CONSULTANCY REF.: AFCD/FIS/02/19 CONSULTANCY SERVICE
FOR ENVIRONMENTAL IMPACT ASSESSMENT STUDY FOR
DESIGNATION OF NEW FISH CULTURE ZONES**
**Environmental Impact Assessment (EIA) Report for Establishment
of** Fish Culture Zone at Wong Chuk Kok Hoi
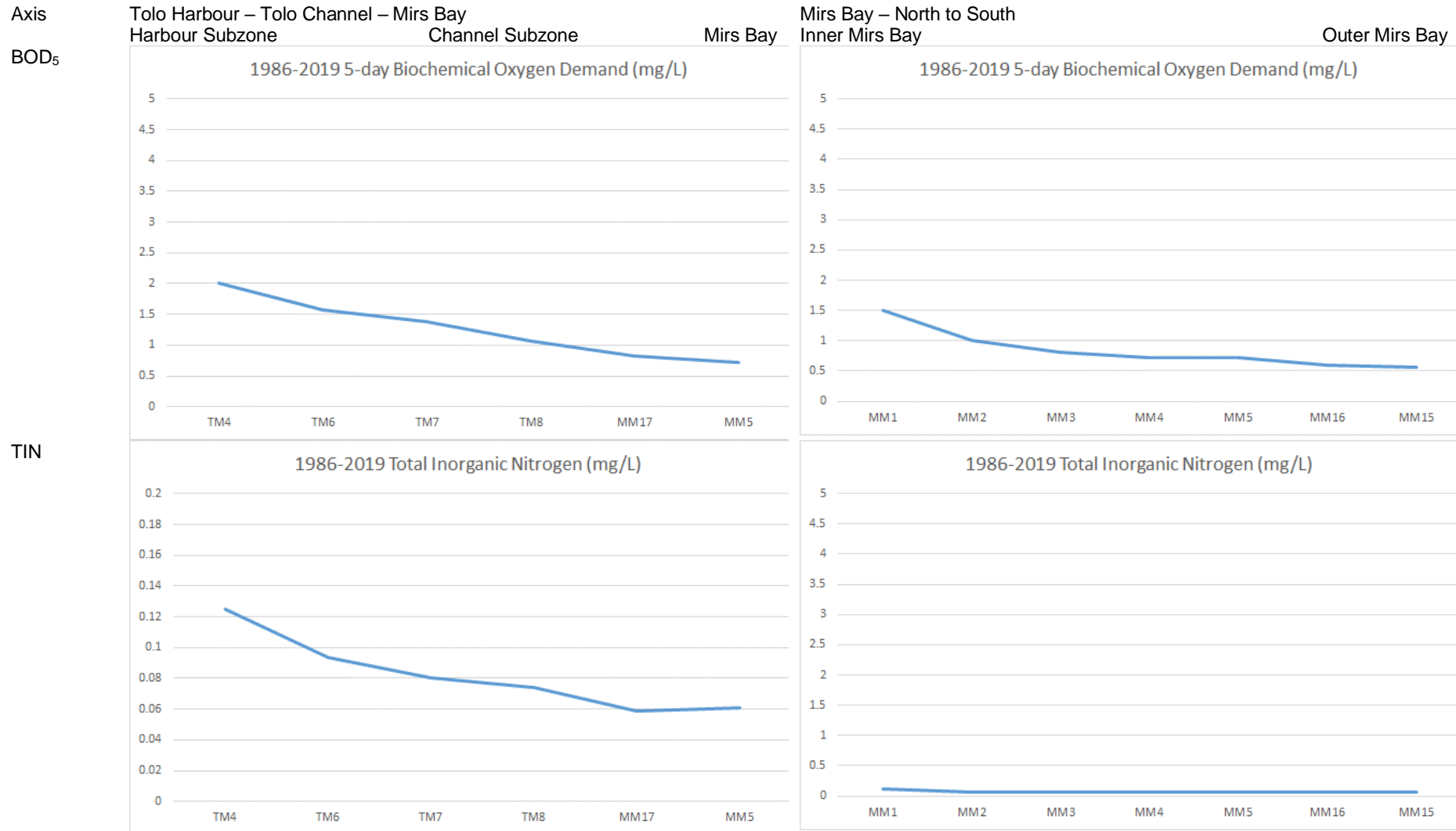
ASSESSMENT OF CARRYING CAPACITY OF THE PROJECT SITE

A review of long term marine water quality monitoring data by EPD along the lines from the inner embayment to opening of both embayments also provides similar findings. EPD Marine Water Quality Monitoring Stations reviewed are shown in *Figure 3B.1.5*. Two lines of EPD marine water quality monitoring stations were considered. First line includes TM4, TM6, TM7, TM8, MM17 and MM5, which represents the contrast inside and outside of the Tolo Harbour. The second line include MM1, MM2, MM3, MM4, MM5, MM16 and MM15, which represents the contrast inside and outside of the Mirs Harbour. The long-term average water quality at these selected water quality parameters along these two lines are shown in *Figure 3B.1.6*. As shown, water quality along the first line shows a clear gradient for all selected parameters. Such gradient typically flattens at around MM17 or TM8. For the second line, the gradient flattens at MM3. This means the effect of major pollution sources from the Tolo Harbour and the Starling Inlet is mostly dissipated at the end of Tolo Channel and the North of Crooked Island respectively. This supports the interpretation that the modelled Scenario 3 is an overestimation.

Figure 3B.1.5   Locations of EPD Marine Water Quality Stations Reviewed

Source: EPD Marine Water Quality Report, 2019

CONSULTANCY REF.: AFCD/FIS/02/19 CONSULTANCY SERVICE
FOR ENVIRONMENTAL IMPACT ASSESSMENT STUDY FOR
DESIGNATION OF NEW FISH CULTURE ZONES
Environmental Impact Assessment (EIA) Report for Establishment
of Fish Culture Zone at Wong Chuk Kok Hoi

ASSESSMENT OF CARRYING CAPACITY OF THE PROJECT SITE

Figure 3B.1.6   Long Term Average Water Quality along the Major Axes of Tolo Harbour and Mirs Bay.
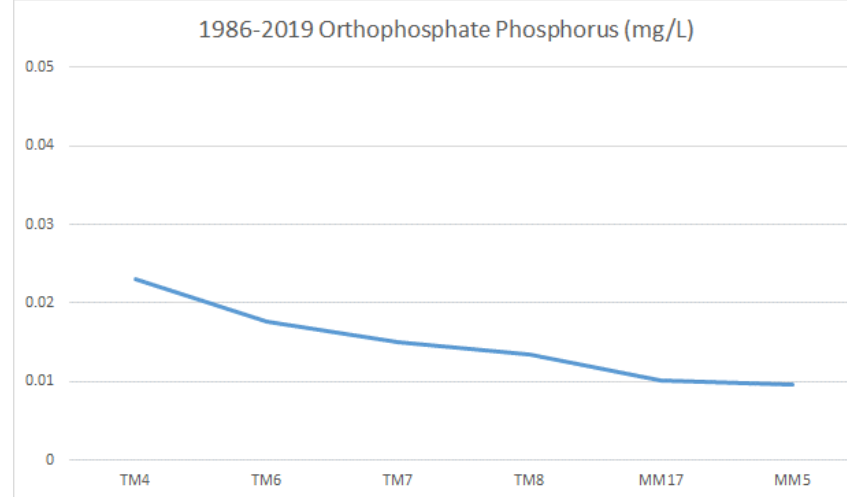
**CONSULTANCY REF.: AFCD/FIS/02/19 CONSULTANCY SERVICE
FOR ENVIRONMENTAL IMPACT ASSESSMENT STUDY FOR
DESIGNATION OF NEW FISH CULTURE ZONES**
Environmental Impact Assessment (EIA) Report for Establishment
of Fish Culture Zone at Wong Chuk Kok Hoi

ASSESSMENT OF CARRYING CAPACITY OF THE PROJECT SITE

Axis	Tolo Harbour – Tolo Channel – Mirs Bay		Mirs Bay – North to South	
	Harbour Subzone	Channel Subzone · Mirs Bay	Inner Mirs Bay	Outer Mirs Bay
Ortho-P				
Chlorophyll-a				

CONSULTANCY REF.: AFCD/FIS/02/19 CONSULTANCY SERVICE
FOR ENVIRONMENTAL IMPACT ASSESSMENT STUDY FOR
DESIGNATION OF NEW FISH CULTURE ZONES
**Environmental Impact Assessment (EIA) Report for Establishment
of** Fish Culture Zone at Wong Chuk Kok Hoi

ASSESSMENT OF CARRYING CAPACITY OF THE PROJECT SITE

Axis	Tolo Harbour – Tolo Channel – Mirs Bay	Mirs Bay – North to South

E.coli
(Note: log. scale y-axis)

**CONSULTANCY REF.: AFCD/FIS/02/19 CONSULTANCY SERVICE
FOR ENVIRONMENTAL IMPACT ASSESSMENT STUDY FOR
DESIGNATION OF NEW FISH CULTURE ZONES**
**Environmental Impact Assessment (EIA) Report for Establishment
of** Fish Culture Zone at Wong Chuk Kok Hoi

ASSESSMENT OF CARRYING CAPACITY OF THE PROJECT SITE

For Scenarios 1 & 2, the key difference is the inclusion of the land-locked water body of Double Haven. A review of EPD Marine Water Quality Data of MM7 (Double Haven) and MM17 (East to the Wong Chuk Kok Hoi) indicated water quality at MM7 is slightly worse than that of the less land-locked MM17 in terms of BOD_5, TIN and chlorophyll-a. This indicated waters in Double Haven should not be considered well-flushed. Given the drogue tracks from the existing Wong Wan FCZ as well as the Project site have the tendency to move into Double Haven, it is considered suitable to assume pollutants from the existing Wong Wan FCZ as well as the Project site would affect the water quality of Double Haven as well. In the perspective of carrying capacity, this means Scenario 2 is more representative of the situation for the existing Wong Wan FCZ as well as the Project site.

Figure 3B.1.7   Locations of Two Nearest EPD Marine Water Quality Monitoring Stations
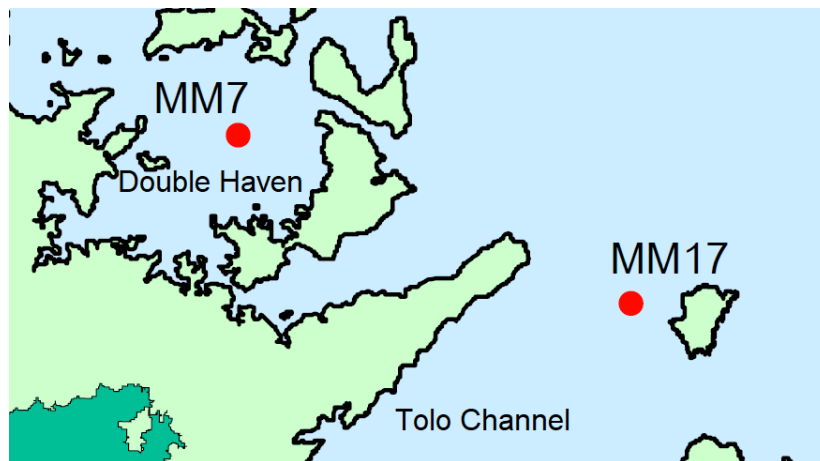
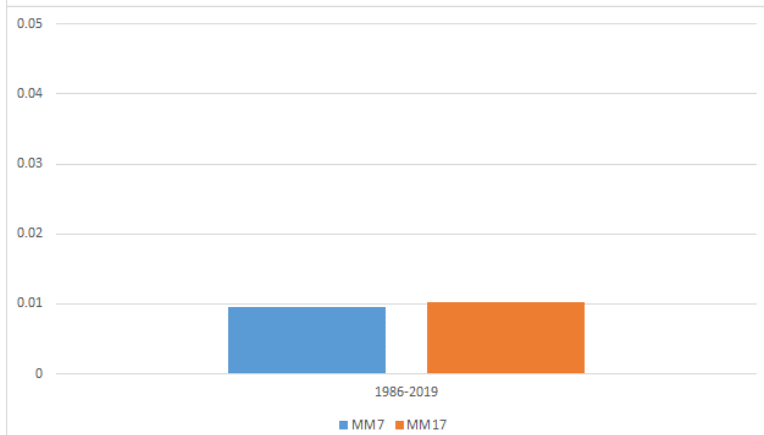Source: EPD Marine Water Quality Report, 2020

Figure 3B.1.8   Comparison of Long Term Average for Selected WQ Parameters at MM7 and MM17
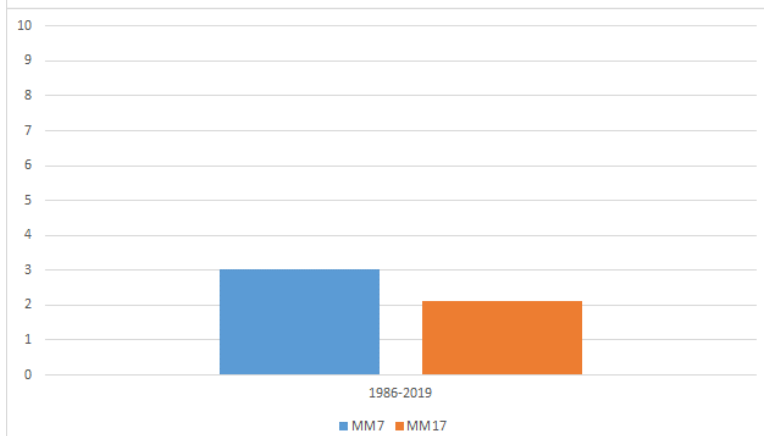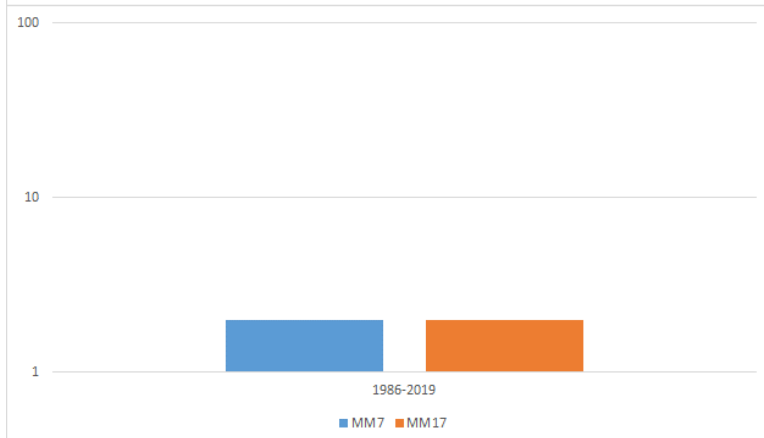
BOD_5

CONSULTANCY REF.: AFCD/FIS/02/19 CONSULTANCY SERVICE FOR ENVIRONMENTAL IMPACT ASSESSMENT STUDY FOR DESIGNATION OF NEW FISH CULTURE ZONES
Environmental Impact Assessment (EIA) Report for Establishment of Fish Culture Zone at Wong Chuk Kok Hoi

ASSESSMENT OF CARRYING CAPACITY OF THE PROJECT SITE
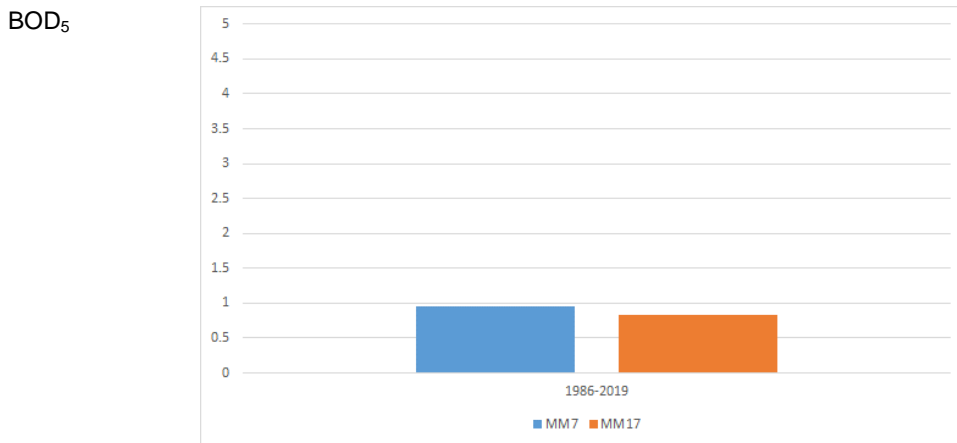
TIN
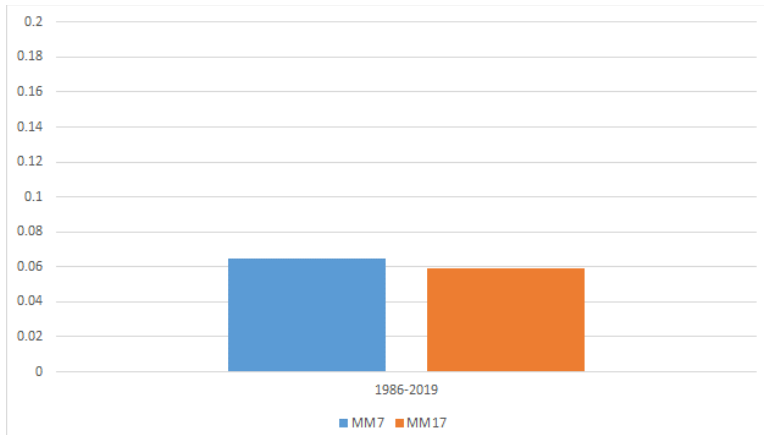
Ortho-P

Chlorophyll-a

E.coli
(Note: log. scale y-axis)

CONSULTANCY REF.: AFCD/FIS/02/19 CONSULTANCY SERVICE
FOR ENVIRONMENTAL IMPACT ASSESSMENT STUDY FOR
DESIGNATION OF NEW FISH CULTURE ZONES
Environmental Impact Assessment (EIA) Report for Establishment
of Fish Culture Zone at Wong Chuk Kok Hoi

ASSESSMENT OF CARRYING CAPACITY OF THE PROJECT SITE

Tracer decay curves for the dry and wet seasons at the existing Wong Wan FCZ are shown in **Figure 3B.1.9**.

Figure 3B.1.9   Tracer Decay Curves for the Existing Wong Wan FCZ under Scenario 2 (Horizontal dashed line indicates tracer mass at a fraction of e [base of natural logarithm], vertical dashed line indicates estimated flushing time)

Dry Season – Scenario 2 Average of Wong Wan FCZ (K_1: 0.38, K_2: 0.26)
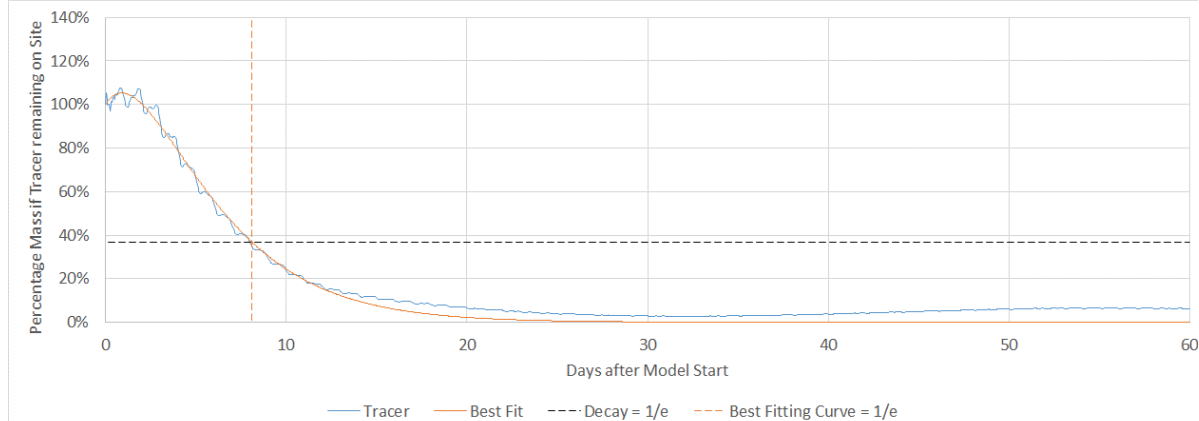
Wet Season – Scenario 2 Average of Wong Wan FCZ (K_1: 0.28, K_2: 0.24)
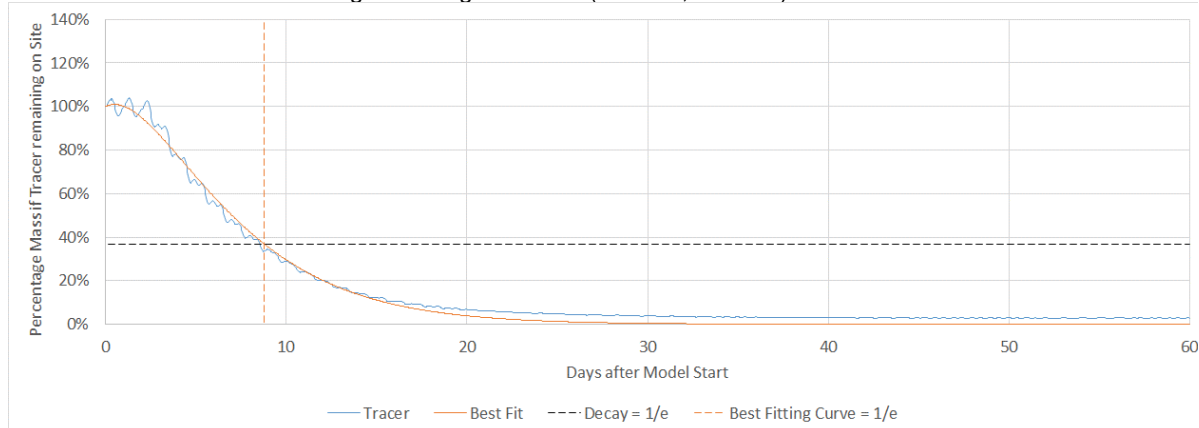
The flushing time for the Project site, together with the surrogated site for calibration (existing Wong Wan FCZ), in both seasons under Scenario 2 are listed in **Table 3B.1.1** below. The estimated flushing time at the Wong Wan FCZ was adopted for calibration of the WATERMAN Carrying Capacity Model.

Table 3B.1.1 Estimated Flushing Time for the Project site and the Wong Wan FCZ

Flushing Time (Day)	Dry Season	Wet Season
Project site	10.0	7.6
Wong Wan FCZ	7.8	8.3

3B.1.2 Calibration of Water Quality Rate Kinetics and Equilibrium Parameters using WATERMAN Hindcast Modelling Tool

Annual production from 2015 to 2019 from the Wong Wan FCZ was obtained from AFCD to estimate the average daily pollution load from the fish farming operation at Wong Wan FCZ based on the estimated unit pollution load established in the *Water Quality Modelling Plan*. The annual fish production rate as well as the corresponding estimated pollution load are shown in **Table 3B.1.2**.

CONSULTANCY REF.: AFCD/FIS/02/19 CONSULTANCY SERVICE FOR ENVIRONMENTAL IMPACT ASSESSMENT STUDY FOR DESIGNATION OF NEW FISH CULTURE ZONES
Environmental Impact Assessment (EIA) Report for Establishment of Fish Culture Zone at Wong Chuk Kok Hoi

ASSESSMENT OF CARRYING CAPACITY OF THE PROJECT SITE

Table 3B.1.2 Annual Fish Production from 2015 to 2019 and Estimated Pollution Load at the existing Wong Wan FCZ

Item	Unit	Unit Load	2015	2016	2017	2018	2019
Annual Production	**Ton/year**	-	8.89	7.78	7.66	6.50	6.83
Estimated Pollution Load							
Oxidized- N	**g/day**	1.3597	12.21	10.69	10.52	8.93	9.38
Ammonia-N	**g/day**	236.0373	2175.20	1905.26	1875.43	1591.58	1672.12
TON	**g/day**	38.1865	1677.37	1469.21	1446.20	1227.31	1289.42
TIP	**g/day**	1.6969	150.27	131.62	129.56	109.95	115.51
TOP	**g/day**	3.5119	180.15	157.79	155.32	131.81	138.48
BOD	**g/day**	540.3082	10048.41	8801.39	8663.60	7352.32	7724.39
TSS	**g/day**	26.7298	6010.48	5264.57	5182.15	4397.81	4620.36

The predicted water quality at the Wong Wan FCZ is compared against the observed water quality to ensure the WATERMAN Hindcast Model is able to reproduce the water quality conditions at the FCZ. Given both the model input (background water quality from nearby EPD Marine Water Quality Monitoring Stations MM5, MM6 and MM16) as well as target for comparison (observed water quality at Wong Wan FCZ) have relatively low data frequency of once per month (and the sampling dates of both sources are not the same), the calibration and validation exercise targeted to reproduce the average water quality instead of the actual time series of specific water quality parameters.

To avoid over-calibrating the modelling parameters, the observed water quality data for year 2015-2017 would first be used to calibrate the modelling parameters and the data for year 2018 and 2019 would be used to compare the model prediction from the calibrated model. Comparison of the observed water quality as well as the predicted water quality using the WATERMAN Hindcast Model at the Wong Wan FCZ from 2018 and 2019 are provided in *Table 3B.1.3*. The calibrated model generally produces predictions at similar levels of the observed water quality. The corresponding set of calibrated water quality parameters is provided in *Table 3B.1.4*. For most of the water quality parameters, the calibrated values are the same as that in the previous WATERMAN study by Wong *et. al.*, 2012 [1].

---

(1)   Wong *et. al.* 2012. Project WATERMAN - Carrying Capacity of Fish Culture Zones in Hong Kong.

CONSULTANCY REF.: AFCD/FIS/02/19 CONSULTANCY SERVICE
FOR ENVIRONMENTAL IMPACT ASSESSMENT STUDY FOR
DESIGNATION OF NEW FISH CULTURE ZONES
Environmental Impact Assessment (EIA) Report for Establishment
of Fish Culture Zone at Wong Chuk Kok Hoi

ASSESSMENT OF CARRYING CAPACITY OF THE PROJECT SITE

Table 3B.1.3 Comparison of Results for Model Calibration using the WATERMAN Carrying Capacity – Unsteady State Hindcast Tool (Modelled: Left; Observed: Right [AFCD Monitoring Data at Wong Wan FCZ]))

**CONSULTANCY REF.: AFCD/FIS/02/19 CONSULTANCY SERVICE
FOR ENVIRONMENTAL IMPACT ASSESSMENT STUDY FOR
DESIGNATION OF NEW FISH CULTURE ZONES**
Environmental Impact Assessment (EIA) Report for Establishment
of Fish Culture Zone at Wong Chuk Kok Hoi

ASSESSMENT OF CARRYING CAPACITY OF THE PROJECT SITE

	DO (mg/L)	BOD$_5$ (mg/L)	TIN (mg/L)	Ortho-P (mg/L)	Chlorophyll-a (mg/L)
2018					
2019					

Note: Values presented are mean depth-average of the specified years and error bars are the range for mean values ± one standard deviation.

CONSULTANCY REF.: AFCD/FIS/02/19 CONSULTANCY SERVICE FOR ENVIRONMENTAL IMPACT ASSESSMENT STUDY FOR DESIGNATION OF NEW FISH CULTURE ZONES
Environmental Impact Assessment (EIA) Report for Establishment
of Fish Culture Zone at Wong Chuk Kok Hoi

ASSESSMENT OF CARRYING CAPACITY OF THE PROJECT SITE

Table 3B.1.4 Kinetic Parameters used in the WATERMAN Water Quality Model for this Study and in Wong *et. al.*, 2012

Parameters	Unit	Value for this Study	Value adopted by Wong *et. al.*, 2012
Maximum algal growth rate	d^{-1}	2	2.1
Temperature coefficient for growth at 20°C	-	1.066	1.066
Algal respiration rate	d^{-1}	0.11	0.11
Temperature coefficient for respiration at 20°C	-	1.080	1.080
Algal mortality	d^{-1}	0.02	0.02
Nitrification rate	d^{-1}	0.1	0.1
Temperature coefficient for nitrification at 20°C	-	1.080	1.080
Organic nitrogen mineralization rate	d^{-1}	0.025	0.025
Temperature coefficient for organic nitrogen mineralization at 20°C	-	1.080	1.080
Denitrification rate	d^{-1}	0.1	0.1
Temperature coefficient for denitrification at 20°C	-	1.045	1.045
Organic phosphorus mineralization rate	d^{-1}	0.060	0.060
Temperature coefficient for organic phosphorus mineralization at 20°C	-	1.080	1.080
Deoxygenation coefficient	d^{-1}	0.210	0.210
Temperature coefficient for deoxygenation at 20°C	-	1.047	1.047
Re-aeration coefficient	d^{-1}	0.543	0.543
Settling velocity of particulate	m/d	1.0	1.0
Half-saturation constant for N uptake	µg N/L	50.0	50.0
Half-saturation constant for P uptake	µP N/L	1.0	1.0
Half-saturation constant for oxygen limitation of nitrification	mg O_2/L	2.0	2.0
Half-saturation constant for oxygen limitation	mg O_2/L	0.5	0.5
Fraction of algal decay into organic nitrogen	-	0.5	0.5
Fraction of algal decay into organic phosphorus	-	1.0	1.0
Fraction of settleable organic matter	-	0.5	0.5
Fraction of dissolved phosphorus in water	-	0.8	0.8

3B.1.3 Estimation of Carrying Capacity

Based on the selected set of kinetic parameters, carrying capacity at the Project site was estimated using the steady state forecast tool WATERMAN Steady State Forecast Model. The estimation involves simulation of a number of scenarios with different scales of mariculture production. Results of water quality simulation were compared against the corresponding water quality criteria to determine the scenario which has the highest mariculture production without exceedance of water quality criteria (i.e. carrying capacity). Predicted water quality for relevant water quality criteria are presented in *Figure 3B.1.10*.

As shown, among all the assessment criteria, TIN is found to be the critical water quality parameters at Project site. Carrying capacity at the Project site is estimated to be 755.2 ton of standing stock under typical average condition and is predicted to be limited by TIN in dry season. Other non-TIN water quality parameters were found to be less sensitive and less critical at or below the estimated

CONSULTANCY REF.: AFCD/FIS/02/19 CONSULTANCY SERVICE FOR ENVIRONMENTAL IMPACT ASSESSMENT STUDY FOR DESIGNATION OF NEW FISH CULTURE ZONES
Environmental Impact Assessment (EIA) Report for Establishment of Fish Culture Zone at Wong Chuk Kok Hoi

ASSESSMENT OF CARRYING CAPACITY OF THE PROJECT SITE

carrying capacity. A summary of the predicted water quality condition at Project site when operating at its carrying capacity are provided in *Table 3B1.7*

Figure 3B.1.10   Predicted TIN Level (µg/L) at the Project site under Various Mariculture Standing Stock in Both Seasons
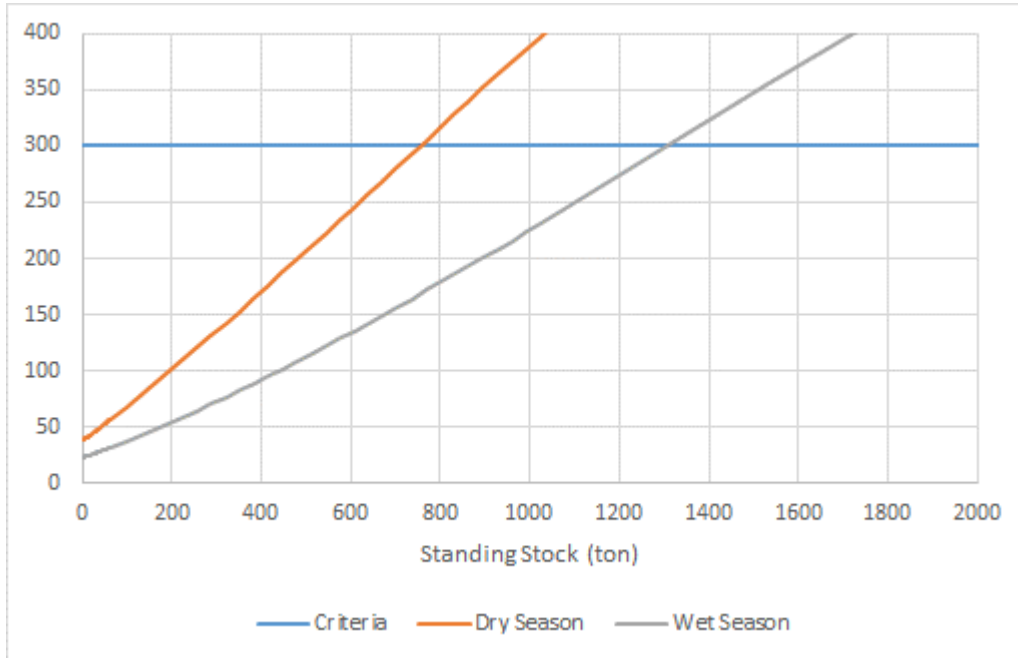
Fluctuations in the weather, hydrodynamic and environmental conditions as well as the farming practices could result in different carrying capacity. Sensitivity tests were conducted to determine how the estimated carrying capacity responds to variations on three key selected parameters, namely flushing time, stock to production ratio and maximum algal growth rate. Three sensitivity test settings (by increasing or decreasing each of these parameters by 20%, i.e. 80%, 100% and 120% of the original values) for each of the above parameters were considered and a total of 3 × 3 × 3 was conducted for each season for the Project site. The carrying capacities with safety margin of 90th- and 95th-percentile were estimated accordingly based on these 27 tests for each season. This means while the estimated carrying capacity of 755.2 ton of standing stock would not result in significant deterioration of water quality under the typical average condition, the case with safety margin of 90th- and 95th-percentile would ensure no significant deterioration in water quality under 90% and 95% of likely condition. The estimated carrying capacities for sensitivity test scenarios with 90% and 95% safety margin are 591.5 ton and 551.9 ton of standing stock respectively. The estimated carrying capacity for the rest the sensitivity test scenarios are provided in *Table 3B1.6*. As shown, estimated carrying capacity varies under different tested conditions while responded minimally to some other conditions, i.e. maximum algal growth rate under some conditions. This indicates under the specific conditions (for flushing time and stocking ratio) the algal growth rate is not limited by the specified maximum and thus the change in maximum algal growth rate would not result in material change in water quality and thus carrying capacity.

For subsequent Delft3D modelling, pollution load from mariculture activities was estimated based on 755.2 ton of standing stock under typical average condition as shown below in *Table 3B.1.5*.

CONSULTANCY REF.: AFCD/FIS/02/19 CONSULTANCY SERVICE FOR ENVIRONMENTAL IMPACT ASSESSMENT STUDY FOR DESIGNATION OF NEW FISH CULTURE ZONES
Environmental Impact Assessment (EIA) Report for Establishment of Fish Culture Zone at Wong Chuk Kok Hoi

ASSESSMENT OF CARRYING CAPACITY OF THE PROJECT SITE

Table 3B.1.5 Estimated Pollution Loading from Mariculture Activities at the Project site at its Carrying Capacity under Typical Average Condition

Sources	Pollution Load Generated Per 1 ton of Standing Stock	Pollution Load Generated for Standing Stock at its Carrying Capacity at Project site
Oxidized-N (g/day)	1.4	1057
Ammonia-N (g/day)	236	178225
Org-N (g/day)	38.2	28848
TIP (g/day)	1.7	1284
TOP (g/day)	3.5	2643
BOD (g/day)	540.3	408029
TSS (g/day)	26.7	20164

Table 3B1.6 Estimated Carrying Capacity (ton) for All Sensitivity Test Scenarios

Flushing Capacity Scaling	Stock to Production Ratio Scaling	Maximum Algal Growth Rate Ratio		
		80%	100%	120%
80%	80%	708.1	708.1	708.1
	100%	635.6	655.8	677.5
	120%	529.7	546.5	564.6
100%	80%	811.0	811.0	811.0
	100%	731.3	755.2	780.6
	120%	609.4	629.3	650.5
120%	80%	916.1	916.1	916.1
	100%	828.0	855.2	884.0
	120%	690.0	712.7	736.7

Table 3B1.7 Predicted Water Quality by WATERMAN Steady State Forecast Model under Typical Average Condition when the Project site Operates at its Predicted Carrying Capacity

	Dissolved Oxygen (mg/L)	Biochemical Oxygen Demand (mg/L)	Total Inorganic Nitrogen (mg/L)	Unionized Ammonia (mg/L)	Ortho-Phosphate Phosphorus (mg/L)	Chlorophyll-a (mg/L)
Criteria	5	5	0.30	0.021	0.018	0.020
Dry Season	7.2	0.5	0.30	0.011	0.008	0.001
Wet Season	6.4	0.5	0.17	0.011	0.006	0.002

Note: Values presented are mean depth-average values.