



Capco 青山發電有限公司
Castle Peak Power Co. Ltd.

Additional Gas-fired Generation Units

Vessel Control Plan

4 May 2020

Project No.: 0554663

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**Additional Gas-fired Generation Units
Environmental Certification Sheet
EP-507/2016/C**

Reference Document/Plan

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Content: *Measures to Mitigate Marine Ecological Impact*

2.4 At least one month before the commencement of construction of each of Unit No.1 and Unit No.2, the Permit Holder shall deposit a Vessel Control Plan to the Director, which shall include the details of the following control measures to be implemented to reduce the potential construction and operation impact from the Project on Indo-Pacific humpback dolphins:

- (a) All vessel operators working on the Project construction will be given briefing, alerting them to the possible presence of dolphins, and the guidelines for safe vessel operation in the presence of cetaceans.
- (b) The use of high-speed vessels will be avoided as far as possible, and all vessels used in the Project will be required to slow down to 10 knots around the area identified as high presence of dolphin.
- (c) The vessel operators of the Project will be required to use predefined and regular routes.

The Vessel Control Plan shall be implemented during the construction of the Project.

2.10 The Vessel Control Plan deposited under Condition 2.4 for each of Unit No.1 and Unit No.2 above shall be implemented during operation.

ET Certification

I hereby certify that the above referenced document/plan complies with the above referenced condition of EP-507/2016/C.

Dr Jasmine Ng, Environmental
Team Leader:



Date: 4 May 2020

IEC Verification

I hereby verify that the above referenced document/plan complies with the above referenced condition of EP-507/2016/C.

Mr Thomas Chan, Independent
Environmental Checker:



Date: 4 May 2020

Signature Page

4 May 2020

Additional Gas-fired Generation Units

Vessel Control Plan



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1. INTRODUCTION

1.1 Background

CLP Power Hong Kong Limited (CLP) and Castle Peak Power Company Limited (CAPCO) are responsible for providing a safe, highly reliable and clean supply of electricity to over 80% of Hong Kong's population at reasonable cost. Within Hong Kong, CLP operates three power stations, namely the Castle Peak Power Station (CPPS), Black Point Power Station (BPPS) and Penny's Bay Power Station (PBPS), all owned by CAPCO, a joint venture between CLP and China Southern Power Grid Company Limited, in which CLP holds a 70% interest.

To support the HKSAR Government's objective of improving air quality and environmental performance in Hong Kong, and consistent with the HKSAR Government's medium-term strategy of increasing the use of natural gas for local power generation, and reducing carbon intensity of local electricity generation, CAPCO propose to install up to two additional gas-fired generation units by phase, with total capacity not exceeding 1,200MW, at the BPPS to both increase local gas-fired electricity generating capacity and accommodate growth in electricity demand. The additional gas-fired generation units will adopt combined cycle gas turbine (CCGT) configuration using natural gas as the primary fuel. Such configuration is aimed at reducing emissions as compared with coal-fired generation, thereby providing a relatively clean source of electricity for Hong Kong. The construction and operation of CCGT Units No.1 and No.2 hereafter referred to as "the Project".

1.2 Project Description

The Project is comprised of the following key components:

- CCGT Units No.1 and No.2 - with total capacity of up to 1,200MW, a stack of 80m high for CCGT Unit No.1 and a stack of 85m high for CCGT Unit No.2, supported by associated facilities such as power generation equipment enclosed in buildings, outdoor pipe racks and underground pipes and cables. A Selective Catalytic Reduction (SCR) system will be installed to reduce NOx emissions;
- Cooling Tower - up to 12 individual cells with associated plume abatement measures for CCGT Unit No.2 (each cell is about 15m(L) x 25m(W) x 30m (H) with footprint of about 4,500m²);
- Cooling water intake facility - including underground water pipelines for the CCGT Units No.1 and No.2;
- Cooling water discharge facility - including the underground water pipelines for the CCGT Units No.1 and No.2; and
- Infrastructure for making connection with existing plants and equipment of the BPPS, such as fuel pipes, pipe racks, utility pipes and 400kV cables.

No major earthworks or site formation works will be required during the construction of the Project and marine dredging works would not be required for the construction of Project. The construction of CCGT Unit No.1 was commenced in December 2016, and it is anticipated that the commercial operation of this unit will be in August 2020. CCGT Unit No.2 is expected to commence construction in June 2020. Commercial operation of CCGT Unit No.2 is anticipated by mid of 2024.

1.3 Purpose of this Vessel Control Plan

It is planned that major equipment for the Project will be transported to the Project Site by barges, as far as practicable, in order to minimise the number of additional truck trips on the roads due to the construction and operation of the Project. This *Vessel Control Plan* is prepared for the Project for deposition to the Director of Environmental Protection in accordance with *Conditions 2.4 and 3.1* of the *Environmental Permit (EP-507/2016/C)*, which presents the details of the following control measures to be implemented to reduce the potential construction and operation impact from the Project on Indo-Pacific humpback dolphins:

- All vessel operators working on the Project construction and operation will be given briefing, alerting them to the possible presence of dolphins, and the guidelines for safe vessel operation in the presence of cetaceans.
- The use of high-speed vessels will be avoided as far as possible, and all vessels used in the Project will be required to slow down to 10 knots around the area identified as high presence of dolphin.
- The vessel operators of the Project will be required to use predefined and regular routes.

1.4 Structure of this Vessel Control Plan

Following this introductory section, the remainder of this *Vessel Control Plan* is organised as follows:

- *Section 2* presents the summary of habitat usage of Indo-Pacific humpback dolphin around the Project to identify area(s) as high presence of dolphin for the proposed 10-knots vessel speed control ;
- *Section 3* presents the proposed predefined and regular routes for the vessel operators of the Project;
- *Section 4* details the briefing to the vessel operators working on the Project construction and operation; and
- *Section 5* provides the summary and conclusions of the *Vessel Control Plan*.

2. HABITAT USAGE OF INDO-PACIFIC HUMPBACK DOLPHINS

2.1 Background

Two resident cetacean species, the Indo-Pacific humpback dolphin (*Sousa chinensis*) and the finless porpoise (*Neophocaena phocaenoides*)⁽¹⁾, have been recorded in Hong Kong waters. Whilst the distribution of Indo-Pacific humpback dolphins is limited to the western waters of Hong Kong, which are influenced by freshwater input from the Pearl River^{(2) (3)}, finless porpoises are common in the waters of southern and eastern Hong Kong and do not occur in Hong Kong's northwestern waters (apart from very occasional strandings)⁽⁴⁾. Since the Project Site is located at Black Point of the northwestern waters, the habitat usage of Indo-Pacific humpback dolphins in Hong Kong will be discussed in the following sub-sections and the habitat usage of finless porpoise is not further discussed.

2.2 Distribution and Abundance of Indo-Pacific Humpback Dolphins

Studies on the distribution, abundance, habitat use, and life history of Indo-Pacific humpback dolphins within Hong Kong have been undertaken since September 1995. The AFCD reported that in 2013 at least 1,300 – 1,500⁽⁵⁾ individual dolphins were estimated by line-transect analysis to utilise the waters of the Pearl River Estuary and Hong Kong⁽⁶⁾. Of these individual dolphins, at least 368 are thought to include waters within Hong Kong as part of their range based on photo-identification technique⁽⁷⁾.

The occurrence of Indo-Pacific humpback dolphins in Hong Kong waters is relatively higher in the West Lantau, Southwest Lantau and around Lung Kwu Chau⁽⁸⁾. These areas are considered to be the major habitats for humpback dolphins in Hong Kong waters, where individuals of humpback dolphins have been consistently sighted throughout the year. Seasonal and spatial variation of abundance of humpback dolphins is usually observed; this is thought to be due to the increased input of freshwater from the discharge of the Pearl River Estuary and the subsequent movements of estuarine prey species into Hong Kong from PRC waters⁽⁹⁾. The abundance of Indo-Pacific humpback dolphins in Hong Kong's waters, estimated using sighting and effort data collected in Hong Kong waters⁽¹⁰⁾ between 2010 and 2018 ranged from 32-88 dolphins⁽¹¹⁾. The data, in particular Northwest Lantau and Northeast Lantau areas (see *Figure 2.1*), indicated that the abundance of dolphin decreased in recent years compared to the previous estimated, ranged from 5-18 dolphins in Northeast Lantau area and 35-84 dolphins in Northwest Lantau area between 2003 and 2011.

Quantitative analysis of habitat used by the Indo-Pacific humpback dolphin through calculating the sighting densities and dolphin densities in terms of number of on-effort sightings/ number of dolphins per km² has been conducted since 1996 and the data were expressed as Sightings Per Survey Effort (SPSE value) and Density Per Survey Effort (DPSE value). The analysis from 2011 to 2018 supports previous findings that the most important area for dolphins in Hong Kong waters is considered to be

- (1) Jefferson TA, Hung SK (2007) *An updated, annotated checklist of the marine mammals of Hong Kong*. Mammalia 2007: 105–114
- (2) Parsons ECM (1998) *The behaviour of Hong Kong's resident cetaceans: the Indo-Pacific hump-backed dolphin and the finless porpoise*. Aquatic Mammals 24: 91–110
- (3) Jefferson TA (2000) *Population biology of the Indo-Pacific hump-backed dolphin in Hong Kong waters*. Wildlife Monographs 144: 1-65
- (4) Jefferson TA, Hung SK (2007) *Op cit*
- (5) This estimate did not include the individuals found in the western Estuary, southwest of Macau and Zhuhai, and therefore only represented a minimum.
- (6) AFCD: Chinese White Dolphin website
<http://www.afcd.gov.hk/english/conservation/con_mar/con_mar_chi/con_mar_chi_chi/con_mar_chi_chi_abu_howmany.html> Accessed on 6 September 2016
- (7) Chan SCY, Karczmarski L (2017) Indo-Pacific humpback dolphins (*Sousa chinensis*) in Hong Kong: Modelling demographic parameters with mark-recapture techniques. PLoS ONE 12(3): e0174029. <https://doi.org/10.1371/journal.pone.0174029>
- (8) AFCD (2019) Monitoring of Marine Mammals in Hong Kong Waters (2018-2019). Prepared by Hong Kong Cetacean Research Project
- (9) Barros NB, Jefferson TA, Parsons ECM (2004) Feeding habits of Indo-Pacific humpback dolphins (*Sousa chinensis*) stranded in Hong Kong. Aquatic Mammals (Special Issue) 30: 179-188
- (10) The survey areas covered Southwest Lantau, West Lantau, Northwest Lantau and Northeast Lantau.
- (11) AFCD (2019). *Op cit*

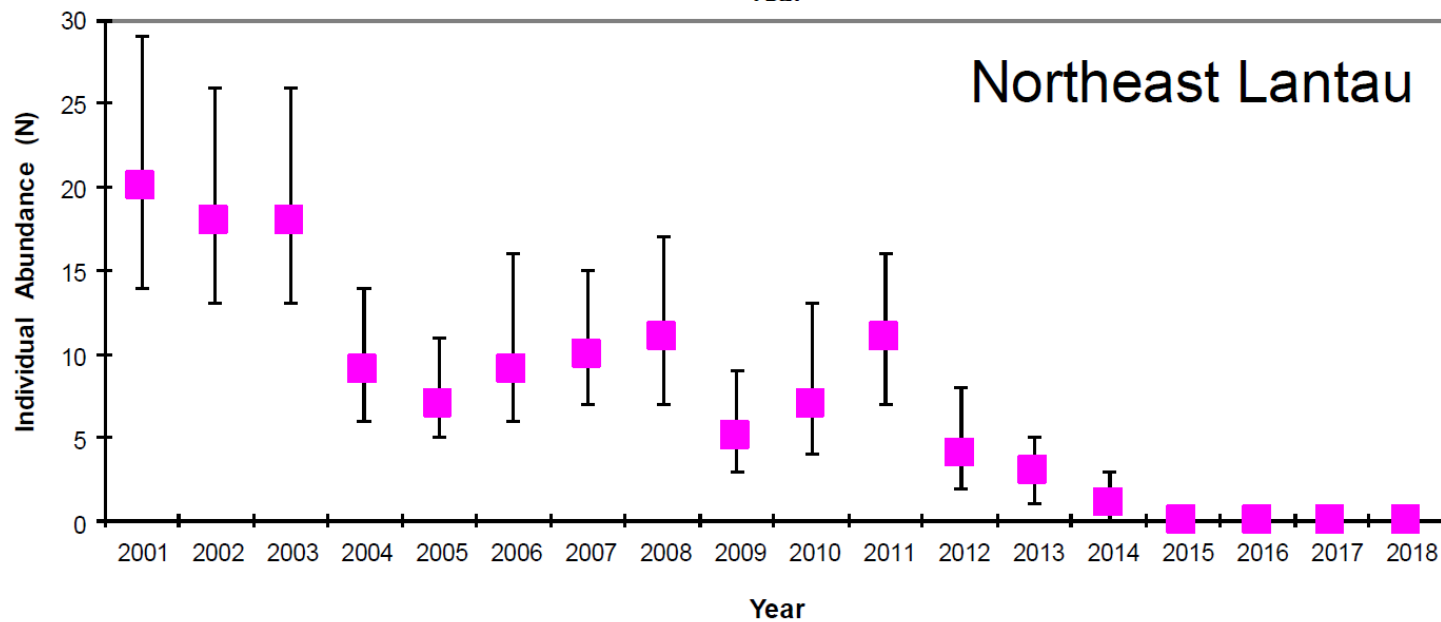
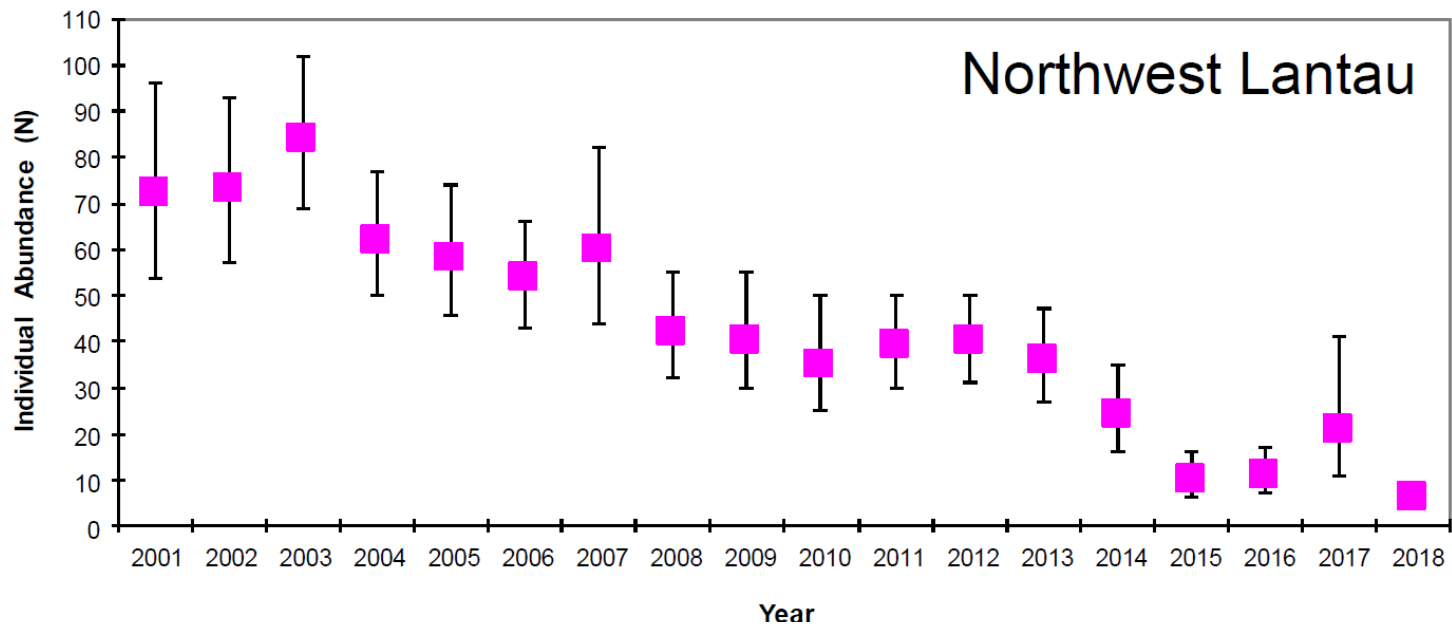


Figure 2.1

Temporal trends in annual abundance estimates of Chinese white dolphins in Northwest Lantau and Northeast Lantau areas from 2001-18 (error bars: 95% confidence interval of abundance estimates)
(Reproduced from AFCD (2019))

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West Lantau and Southwest Lantau from Tai O Peninsula towards Fan Lau, followed by the area around Lung Kwu Chau ⁽¹⁾ (*Figures 2.2 and 2.3*). In contrast, they only used waters of Deep Bay and area around Black Point infrequently. The corrected sighting density (SPSE values) and dolphin density (DPSE values) ⁽²⁾ in 2017 and 2018 ⁽³⁾⁽⁴⁾ (*Figures 2.4 to 2.5*) also indicated that the density of dolphins in Deep Bay were lower than those of other survey areas within Hong Kong and the nearest area with relatively high density is at least 3 km away, which is around Lung Kwu Chau. The temporal analysis of dolphin density also indicated that dolphin usage at Black Point within Deep Bay has fluctuated from 2004-2015 with no apparent trend and dolphin was absent in recent year from 2016-2018 (*Figure 2.6*).

Theodolite tracking survey results conducted during EIA stage of the Project suggested that the inshore waters of Deep Bay are the marginal habitat for the dolphins and they are rarely present in close proximity to the BPPS.

2.3 Areas Identified as High Presence of Indo-Pacific Humpback Dolphins

Historical and EIA survey data summarised in *Section 2.2* indicated that the distribution of Indo-Pacific humpback dolphins has changed in recent years, with fewer sightings and lower densities of dolphins (though slight rebounds of dolphin usage were noted in 2017 and 2018 ⁽⁵⁾) recorded in northern Lantau including the area around Lung Kwu Chau while higher densities of dolphins recorded in the West Lantau and Southwest Lantau from Tai O Peninsula towards Fan Lau. Considering this latest trend and the continual marine activities anticipated in northern Lantau in the coming years, it is considered appropriate to use the standardised dolphin density value (DPSE) of 2018 to determine the areas of high presence of Indo-Pacific humpback dolphins, which are defined as grids having a DPSE of >61, i.e. moderate to high density ⁽⁶⁾. The areas identified as high presence of Indo-Pacific humpback dolphins in Hong Kong waters are shown in *Figure 2.7*, which are generally located in the West Lantau and Southwest Lantau from Tai O Peninsula towards Fan Lau. All vessels used in the Project will be required to slow down to 10 knots around these areas and the predefined and regular marine travel routes will be discussed in *Section 3*. It should be noted that apart from the areas identified as high presence of Indo-Pacific humpback dolphins in Hong Kong waters above, all vessels used in the Project will also be required to slow down to 10 knots at other important dolphin areas, such as existing and proposed marine parks in Hong Kong and the Pearl River Estuary Chinese White Dolphin National Nature Reserve in Mainland China to be discussed in *Section 3* below.

(1) AFCD (2019) *Op cit*

(2) For quantitative grid analysis of habitat use of dolphins, positions of on-effort sightings were plotted onto 1 km² grids within the survey areas to calculate sighting density for each grid (number of on-effort sightings per km²). Sighting density grids were then normalized with the amount of survey effort conducted within each grid to provide a new, survey effort-corrected sighting density data, termed "SPSE", which represents the number of on-effort sightings per unit of survey effort. SPSE was further elaborated to look at actual dolphin densities (number of dolphins from on-effort sightings per km²). The new unit for this approach was termed "DPSE", which is the number of dolphins per unit of survey effort. Plotting the DPSE values of surveyed grid squares on maps allows areas where the most dense sightings of dolphins occur to be identified.

(3) AFCD (2018). *Monitoring of Marine Mammals in Hong Kong Waters (2017-2018)*. Prepared by Hong Kong Cetacean Research Project

(4) AFCD (2019) *Op cit*

(5) AFCD (2019). *Op cit*

(6) The identification of areas of high presence of Indo-Pacific humpback dolphins has considered the approach made in recent relevant reports such as the *Marine Traffic Routes and Management Plan for Construction and Associated Vessels* prepared for the Expansion of Hong Kong International Airport into a Three-Runway System by Mott MacDonald (2015). In view of the nature and scale of this Project it was considered that the current approach outlined (standardised dolphin density value (DPSE of 2014) in this Plan is appropriate.

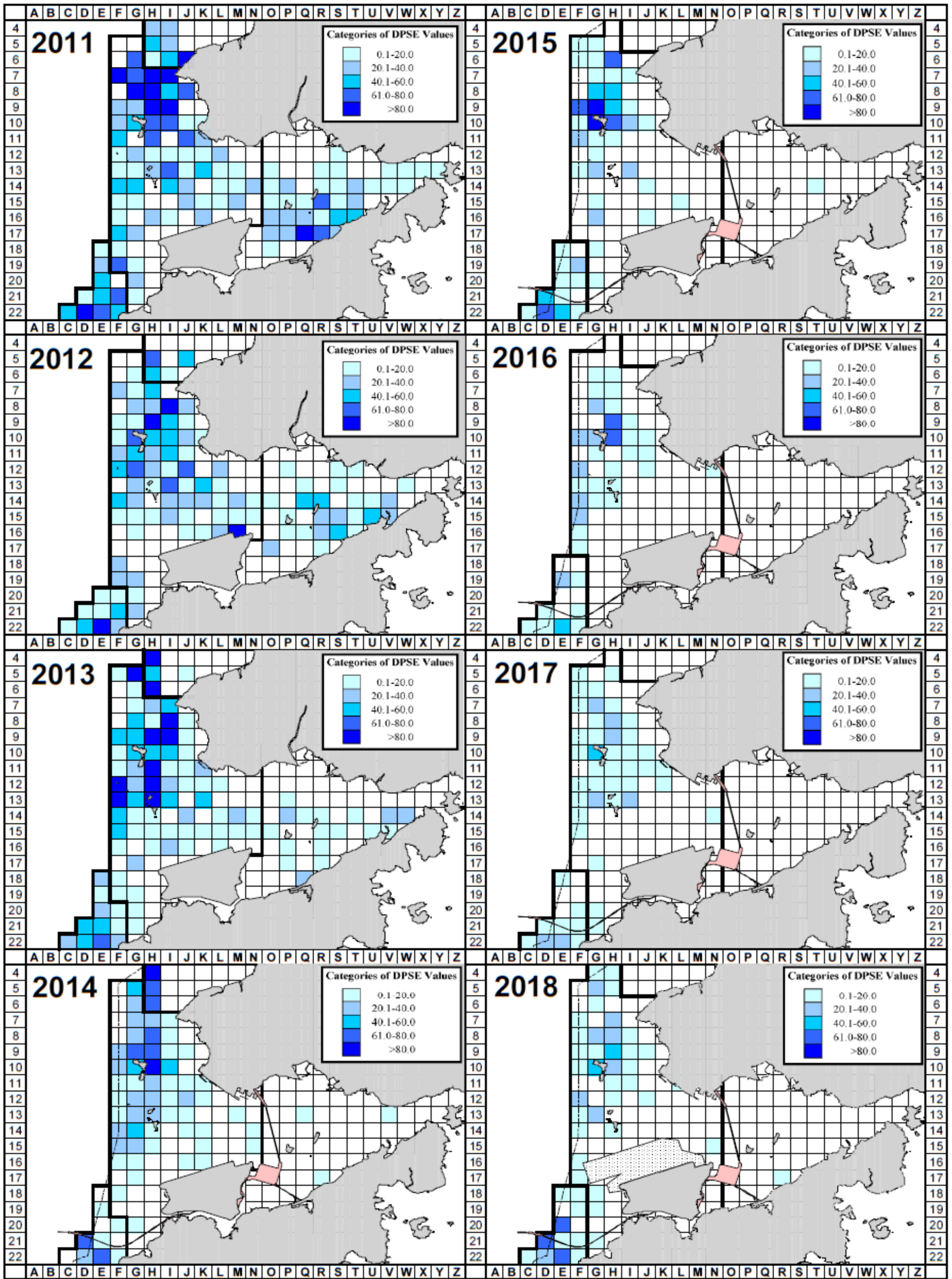


Figure 2.2 Comparison of dolphin densities with corrected survey effort per km² in North Lantau waters in 2011-18 (number within grids represent "DPSE" = no. of dolphins per 100 units of survey effort)
(Reproduced from AFCD (2019))

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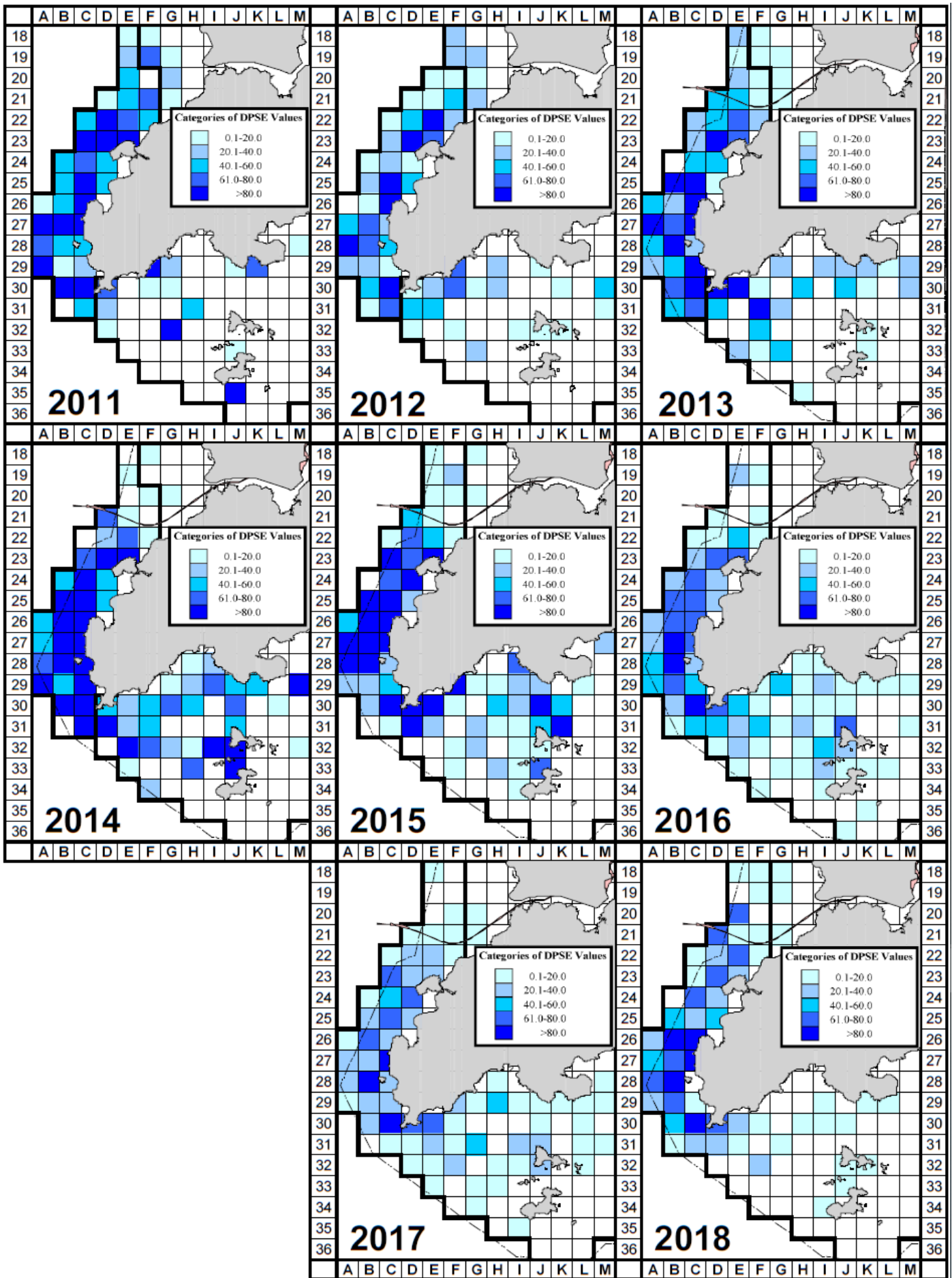


Figure 2.3 Comparison of dolphin densities with corrected survey effort per km² in West and Southwest Lantau waters in 2011-18 (number within grids represent "DPSE" = no. of dolphins per 100 units of survey effort) (Reproduced from AFCD (2019))

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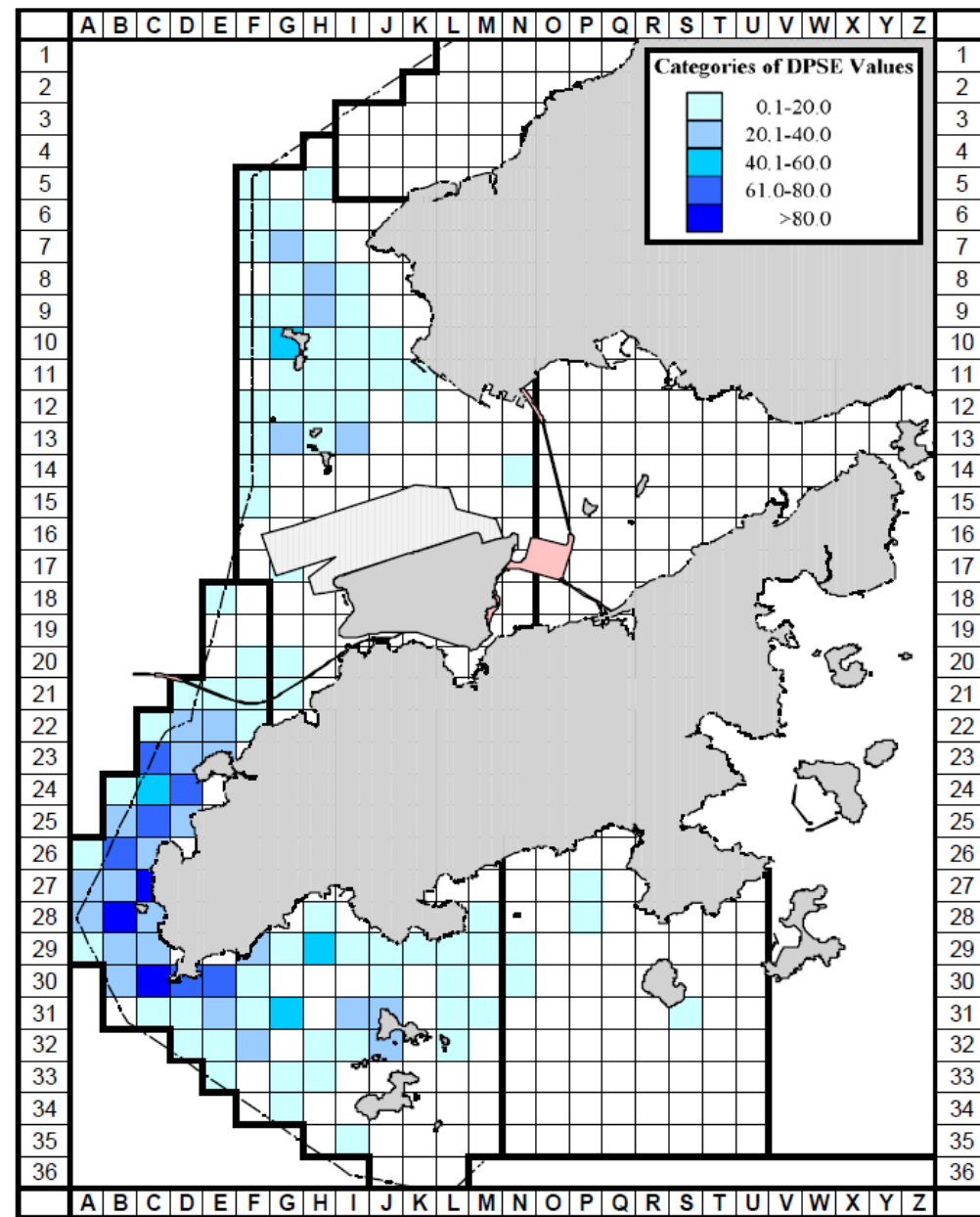
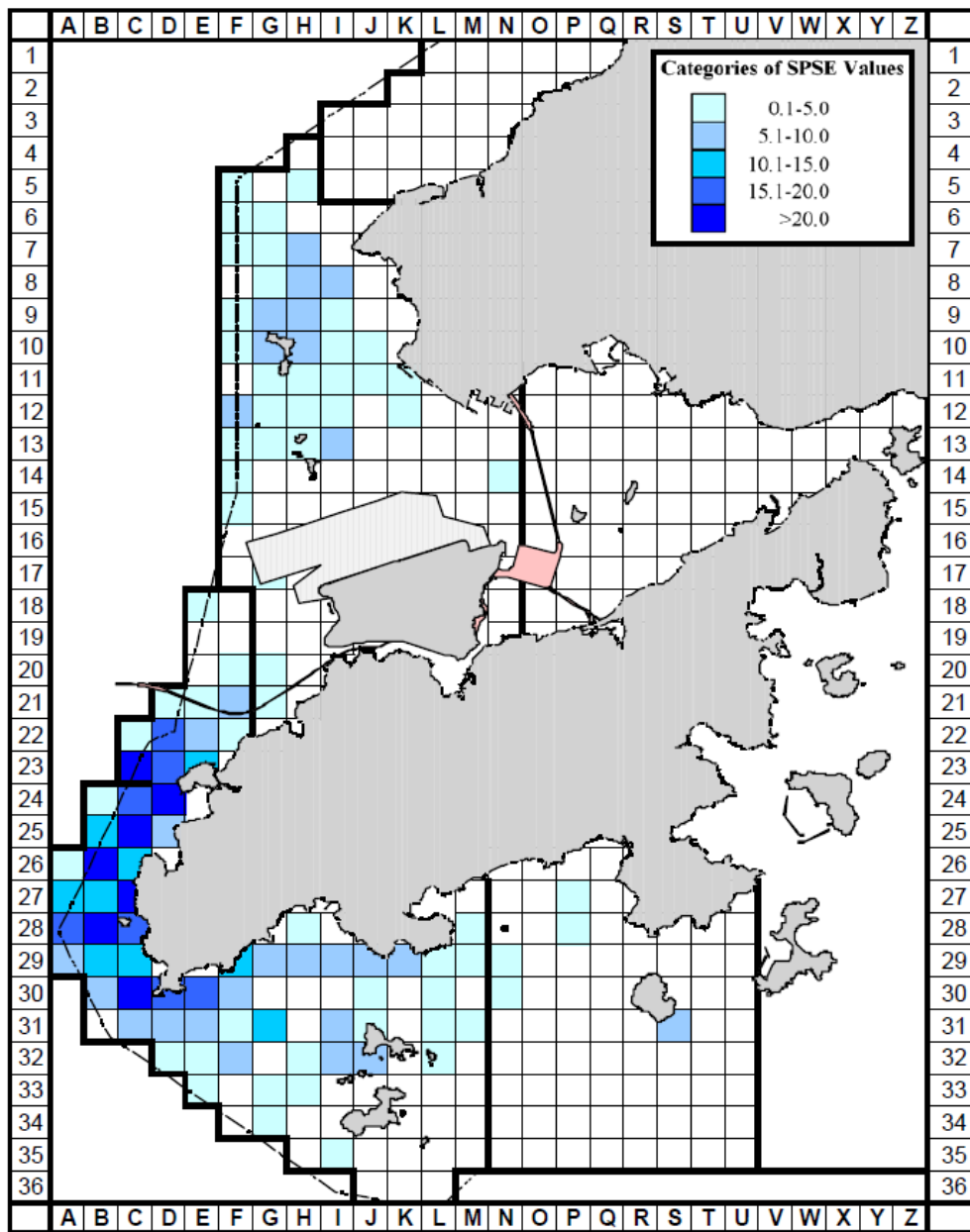


Figure 2.4 SPSE and DPSE of Indo-Pacific Humpback Dolphins with corrected survey effort per km² in waters around Lantau Island using data from January - December 2017 (Reproduced from AFCD (2018))

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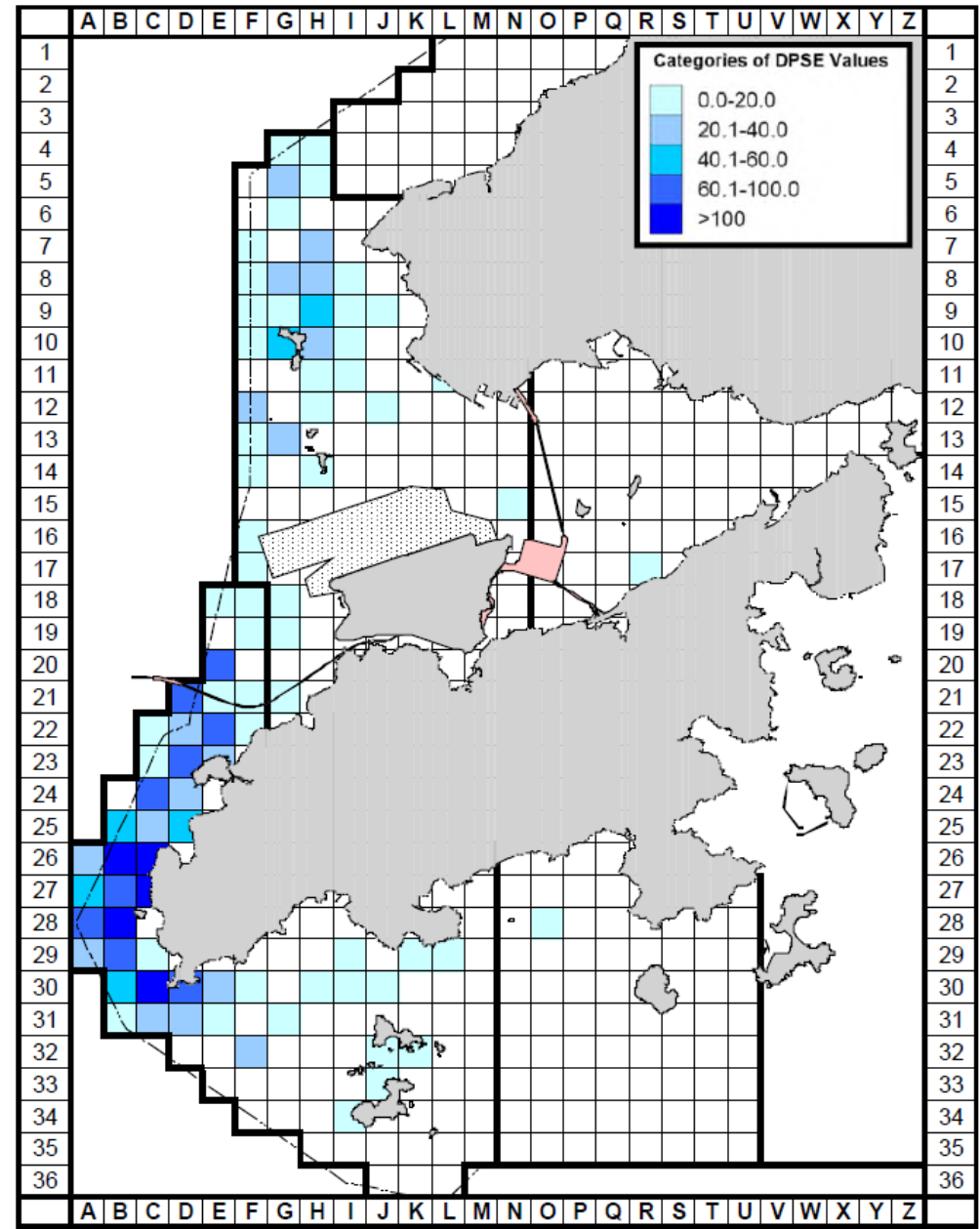
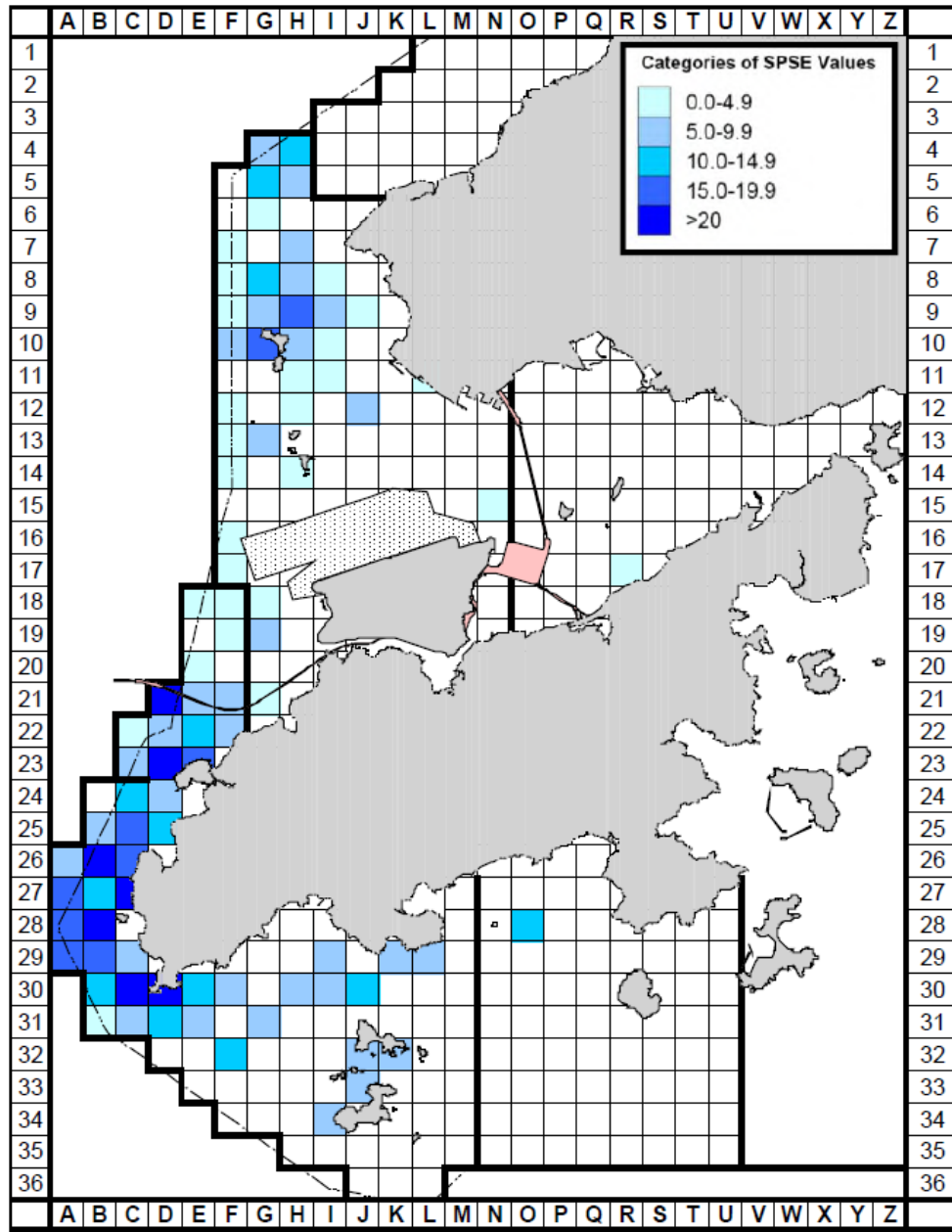


Figure 2.5 SPSE and DPSE of Indo-Pacific Humpback Dolphins with corrected survey effort per km² in waters around Lantau Island using data from January - December 2018 (Reproduced from AFCD (2019))

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Black Point

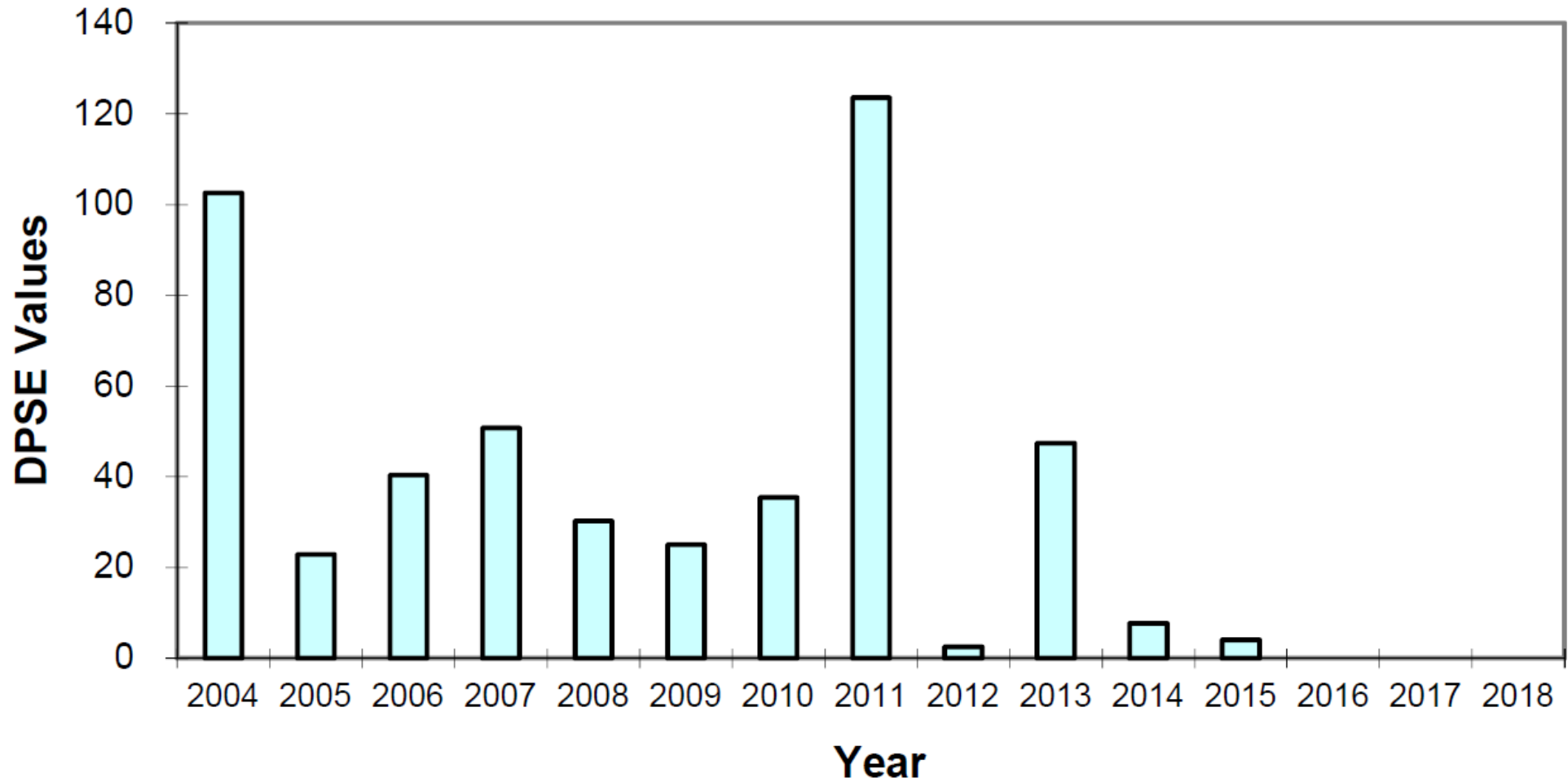


Figure 2.6

Temporal trend of dolphin densities (DPSE Values) at Black Point in Lantau waters
(Reproduced from AFCD (2019))

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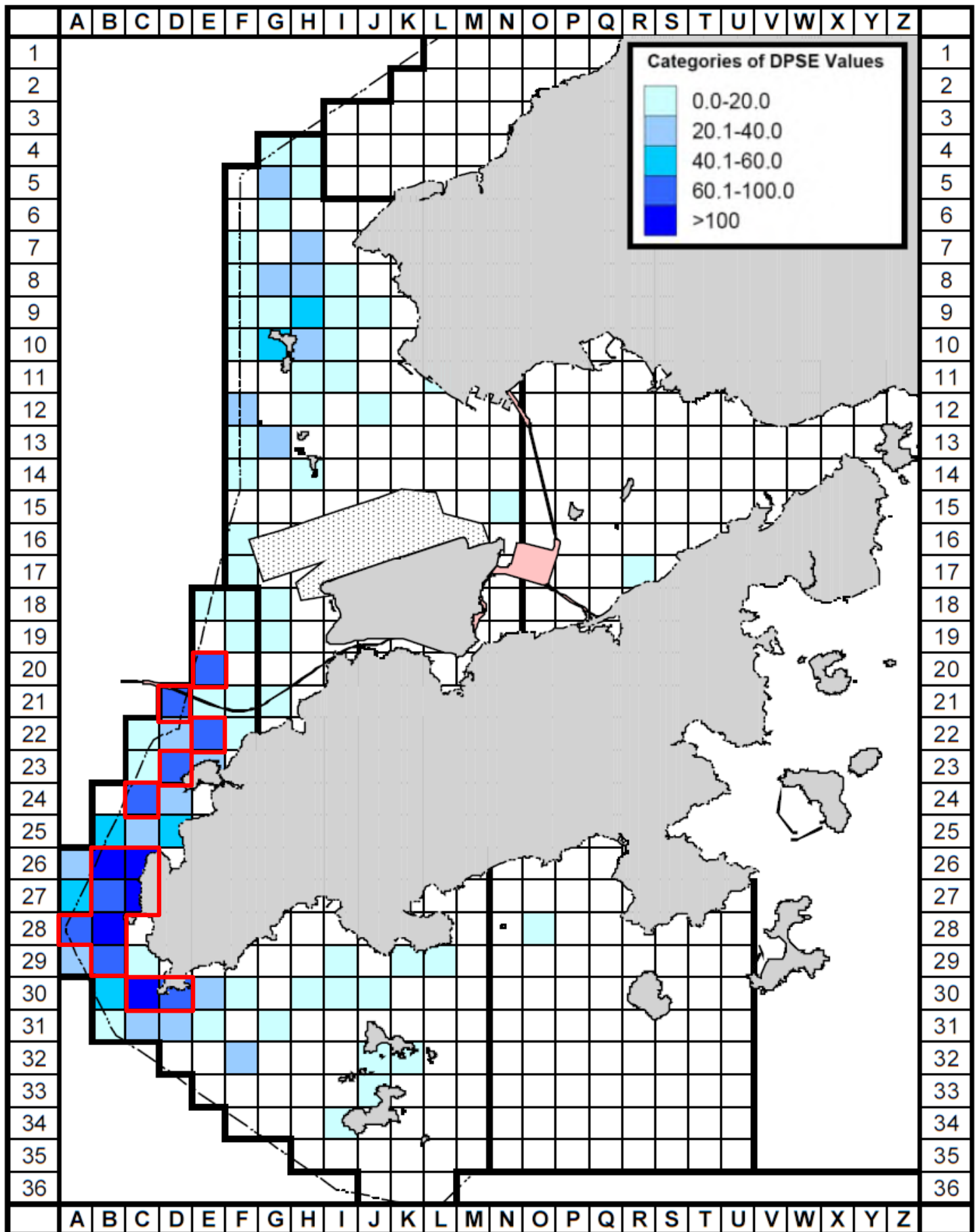


Figure 2.7 Areas Identified as High Presence of Indo-Pacific Humpback Dolphins in Hong Kong Waters
(Reproduced from AFCD (2019))

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3. PREDEFINED AND REGULAR ROUTES FOR VESSEL OPERATORS

3.1 Background

All vessel operators shall follow all relevant regulations and restrictions applicable to Hong Kong and Mainland China. To minimise disturbance of Indo-Pacific humpback dolphin due to vessel movement, the vessel operators for the Project will be required to use predefined and regular routes. The key criteria for setting marine travel routes together with the proposed predefined routes of the Project are described below.

3.2 Criteria of Setting Marine Travel Routes

3.2.1 Marine Parks and Areas with High Presence of Indo-Pacific Humpback Dolphins

There are six existing Marine Parks and one Marine Reserve in Hong Kong, including Hoi Ha Wan Marine Park, Yan Chau Tong Marine Park, Tung Ping Chau Marine Park and Cape D'Aguiar Marine Reserve in eastern Hong Kong waters as well as Sha Chau and Lung Kwu Chau Marine Park, The Brothers Marine Park and Southwest Lantau Marine Park in western Hong Kong waters (*Figure 3.1*). Some planned Marine Parks, including South Lantau Marine Park, and The Marine Park for the Expansion of Hong Kong International Airport into a Three-runway System (3RS Marine Park), in western Hong Kong waters are planned to be designated in 2022 and 2024, respectively (*Figure 3.1*). All vessel operators working on the Project construction and operation shall avoid travelling through existing and planned Marine Parks and areas with high presence of Indo-Pacific humpback dolphins (*Figure 3.1*; see *Section 2.3*) wherever possible. Should the vessels enter these areas, a speed limit of 10 knots shall be followed. It should be noted that no boating is allowed within the Cape D'Aguiar Marine Reserve under the *Marine Parks and Marine Reserves Regulation*.

Apart from the abovementioned areas in Hong Kong waters, there is a Pearl River Estuary Chinese White Dolphin National Nature Reserve (PRECWDNNR) located in the north of the Pearl River Estuary outside the HKSAR boundary as shown in *Figure 3.1*. Should the vessels enter these areas, a speed limit of 10 knots shall be followed.

3.2.2 Existing Navigation Channel and Marine Traffic

To comply with safe navigation requirement, all vessel operators of this Project shall travel within the existing fairways and navigation channels, including Urmston Road Fairway, Castle Peak Fairway, Tung Chung Navigation Channel, Ma Wan Fairway, Kap Shui Mun Fairway, Traffic Separation Scheme within the West Lamma Channel and Lantau Channel, Western Fairway and East Lamma Channel (*Figure 3.1*).

3.2.3 Restricted Areas, Height Restriction and Speed Limit

Based on the Marine Department's Notice for the Establishment of Restricted Areas and Height Restricted Areas ⁽¹⁾, all vessels are prohibited from entering and passing through the airport approach areas surrounding the Hong Kong International Airport (HKIA) as illustrated in *Figure 3.2*.

In addition, all vessels shall comply with the airport height restriction (AHR) limit as well as other navigational restrictions, including various bridge area restrictions (i.e. Tsing Ma, Kap Shui Mun, Tung Chung, Tsing Yi, Hongkong-Zhuhai-Macao Bridge, etc.) and local speed restrictions in different navigation areas of Hong Kong.

(1) Marine Department (1998). Establishment of Restricted Areas and Height Restricted Areas for the New Hong Kong International Airport. <http://www.mardep.gov.hk/en/notices/pdf/mdn98065.pdf> [Accessed on 10-08-2015].

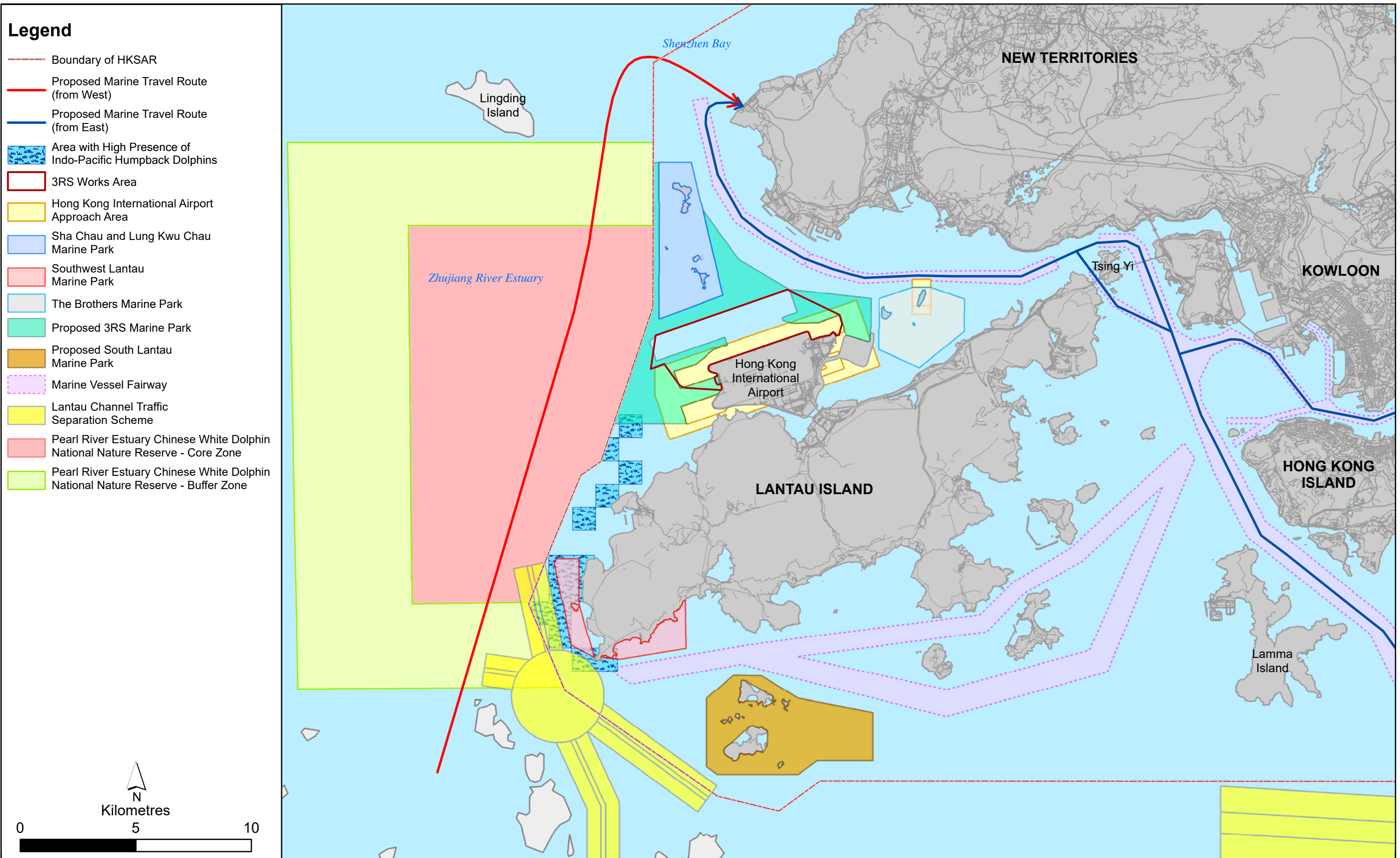


Figure 3.1

Proposed Predefined and Regular Marine Travel Routes

Legend

- 1 Restricted Areas
- Boundary of HKSAR
- Proposed Marine Travel Route (from West)
- Proposed Marine Travel Route (from East)
- Lantau Channel Traffic Separation Scheme
- Marine Vessel Fairway
- Height Restriction

- ① Except with the permission of the Director of Marine, no vessel shall enter or pass through the Airport Approach Area No.1.
- ② Except with the permission of the Director of Marine, no vessel shall enter or pass through the Airport Approach Area No.2.
- ③ Except with the permission of the Director of Marine, no vessel shall enter or pass through the Airport Approach Area No.3.
- ④ Except with the permission of the Director of Marine, no vessel shall enter or pass through the Airport Approach Area No.4.
- ⑤ Except with the permission of the Director of Marine, no vessel which has a height exceeding 15 metres above sea level shall enter or pass through the Airport Approach Area No.5.
- ⑥ Except with the permission of the Director of Marine, no vessel which has a height exceeding 15 metres above sea level shall enter or pass through the Airport Approach Area No.6.
- ⑦ Except with the permission of the Director of Marine, no vessel which has a height exceeding 30 metres above sea level shall enter or pass through the Airport Approach Area No.7.
- ⑧ The maximum permitted speed for a vessel of an overall length of 60 metres or less is 10 knots, and for a vessel of an overall length more than 60 metres is 8 knots.
- ⑨ The maximum permitted speed for a vessel of an overall length of 60 metres or less is 15 knots, and for a vessel of an overall length more than 60 metres is 10 knots.
- ⑩ The maximum permitted speed is 15 knots.
- ⑪ According to Section 19 of the Merchant Shipping (Local Vessels) (General) Regulation (Cap. 548F), except with the permission of the Director of Marine,
 - (i) a local vessel with a height exceeding 8 m above sea level shall not enter the Tung Chung Bridges Area;
 - (ii) a local vessel with a height exceeding 41 m above sea level shall not enter the Kap Shui Mun Bridge Area;
 - (iii) a local vessel with a height exceeding 53 m above sea level shall not enter the Tsing Ma Bridge Area;
 - (iv) a local vessel with a height exceeding 68.5 m above sea level shall not enter the Stonecutters Bridge Area.

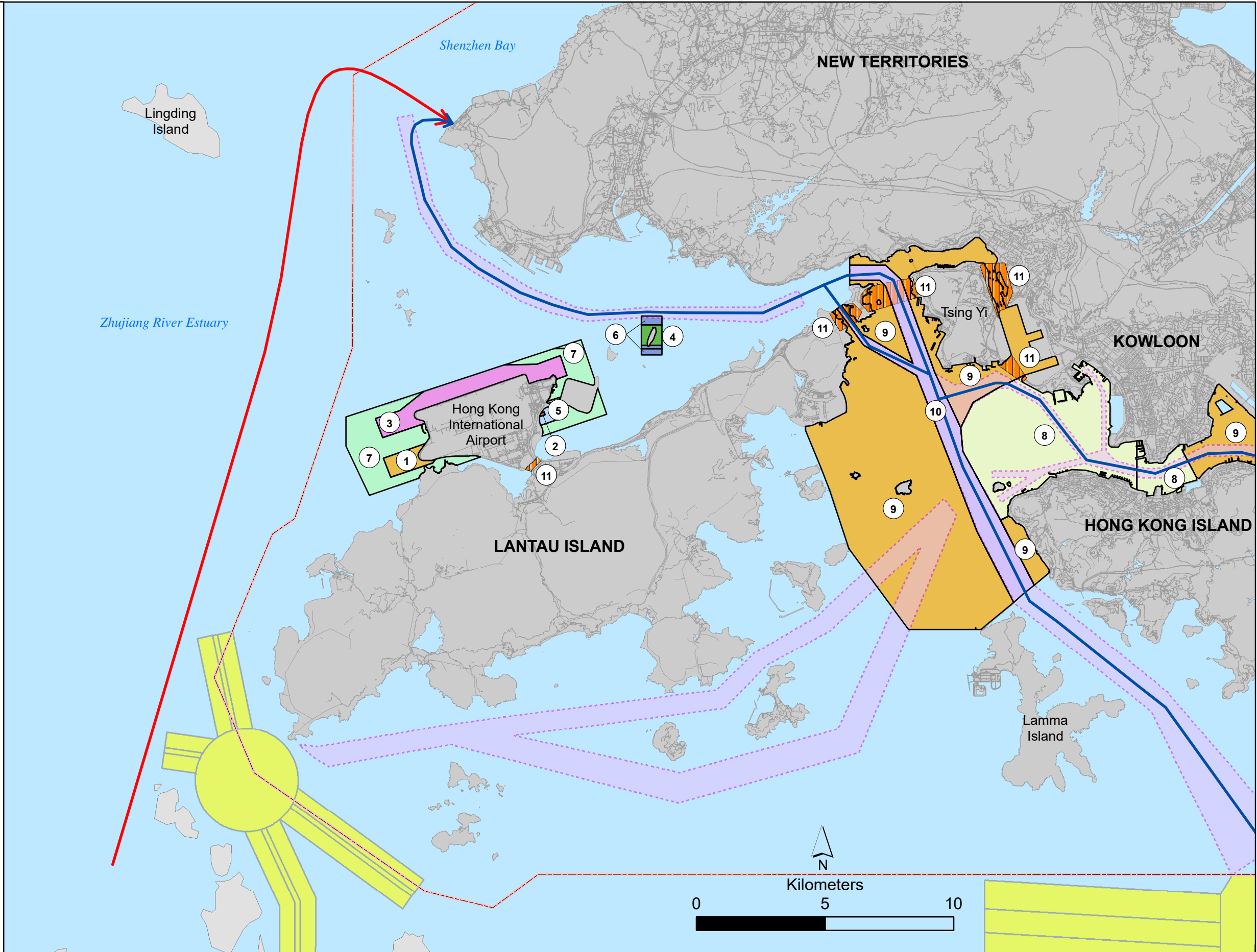


Figure 3.2
 Restricted Areas, Height Restrictions and Speed Limits
 along the Proposed Predefined and Regular Marine Travel Routes

3.2.4 Water Depth

In order to prevent from navigation hazard, all vessel operators of the Project must travel in waters with adequate water depth during movement. All the vessel operators shall remain alert to shallow water areas when navigating to the Project Site with sufficient clearance between the vessel draft and the seabed (*Figure 3.3*).

3.2.5 Other Marine Facilities

A number of infrastructure developments are planned or underway in western Hong Kong waters with multiple marine users operating. These include the Expansion of HKIA into a Three-runway System, Tung Chung New Town Extension, Hong Kong Offshore LNG Terminal, Tuen Mun – Chek Lap Kok Link (TM-CLKL), contaminated sediment disposal facilities, anchorage areas, and submarine utilities such as cables, pipelines, seawater intake and effluent outfalls (*Figure 3.4*). All vessel operators of the Project shall avoid crossing through these areas due to safety concerns and potential operational impacts.

3.3 Predefined and Regular Marine Travel Routes

For this Project, the work activity to be conducted using barges through marine travel routes will be the transport of supplies and equipment. Since the works contractors are yet to be board during the preparation of this Plan, the marine travel route is proposed based on best available information. It is expected that crane barge, derrick lighter, flat top barge, hopper barge and tug boat may be used during the construction and operation of the Project. High-speed vessels will not be used for the Project. It is anticipated to have a few shipments per day for transporting supplies and equipment during the construction and operation of the Project.

Taking into account the criteria and general principles described in *Section 3.2*, two marine travel routes are proposed for the Project, one travelling from the west and one travelling from the east. Project vessels will use these predefined routes for the regular transits as well as for leaving the Project Site in the event of inclement weather conditions deemed unsafe for project activity to proceed⁽¹⁾. For vessels travelling from the west, they will travel to the BPPS through the Pearl River Estuary and will avoid travelling through the West Lantau and Southwest Lantau from Tai O Peninsula towards Fan Lau of the Hong Kong water region where practicable given the increase in density of Indo-Pacific humpback dolphins in recent years as discussed in *Section 2.3*. They should avoid crossing the proposed South Lantau Marine Park, Southwest Lantau Marine Park, proposed 3RS Marine Park, areas identified as high presence of Indo-Pacific humpback dolphins in West Lantau and Southwest Lantau from Tai O Peninsula towards Fan Lau, and Sha Chau and Lung Kwu Chau Marine Park, as far as practicable. Should they enter these areas, a speed limit of 10 knots shall be followed.

For vessels travelling from the east, they may travel to the BPPS through Tathong Channel / East Lamma Channel, Ma Wan Fairway /Kap Shui Mun Fairway, and Castle Peak Fairway and Urmston Road Fairway. The vessels shall avoid crossing through the The Brothers Marine Park, the proposed 3RS Marine Park, Sha Chau and Lung Kwu Chau Marine Park, as far as practicable. Should they enter these areas, a speed limit of 10 knots shall be followed.

3.4 Implementation and Monitoring

The predefined and regular marine travel routes will be covered in the briefing to be conducted for all vessel operators for the Project. The record of marine travel routes of the works vessels will be requested by the Environmental Team (ET) for inspection and monitoring purposes. Warning will be noticed to the vessel operators if the predefined and regular marine travel route is not followed. Details of the monitoring method and procedures will be developed with the vessel operators when engaged, and agreed with the Independent Environmental Checker (IEC) before implementation. As the predefined and regular marine travel routes may be updated in view of the change in dolphin

⁽¹⁾ The transport of supplies and equipment to the BPPS can be managed to avoid inclement weather conditions. Vessel operators will follow relevant local regulations and guidelines to take shelter in appropriate typhoon shelter(s).

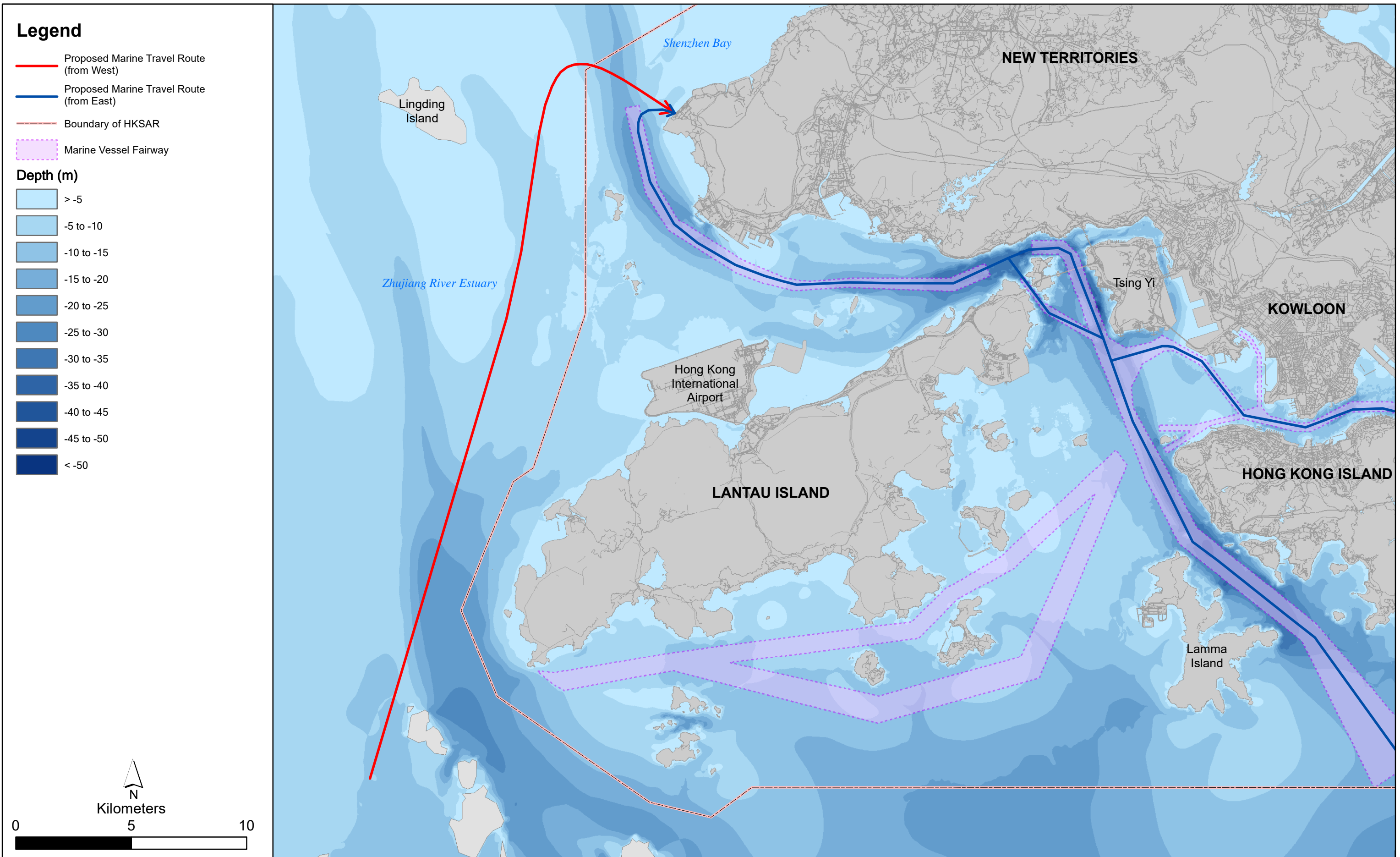


Figure 3.3

Bathymetric Map along the Proposed Predefined and Regular Marine Travel Routes

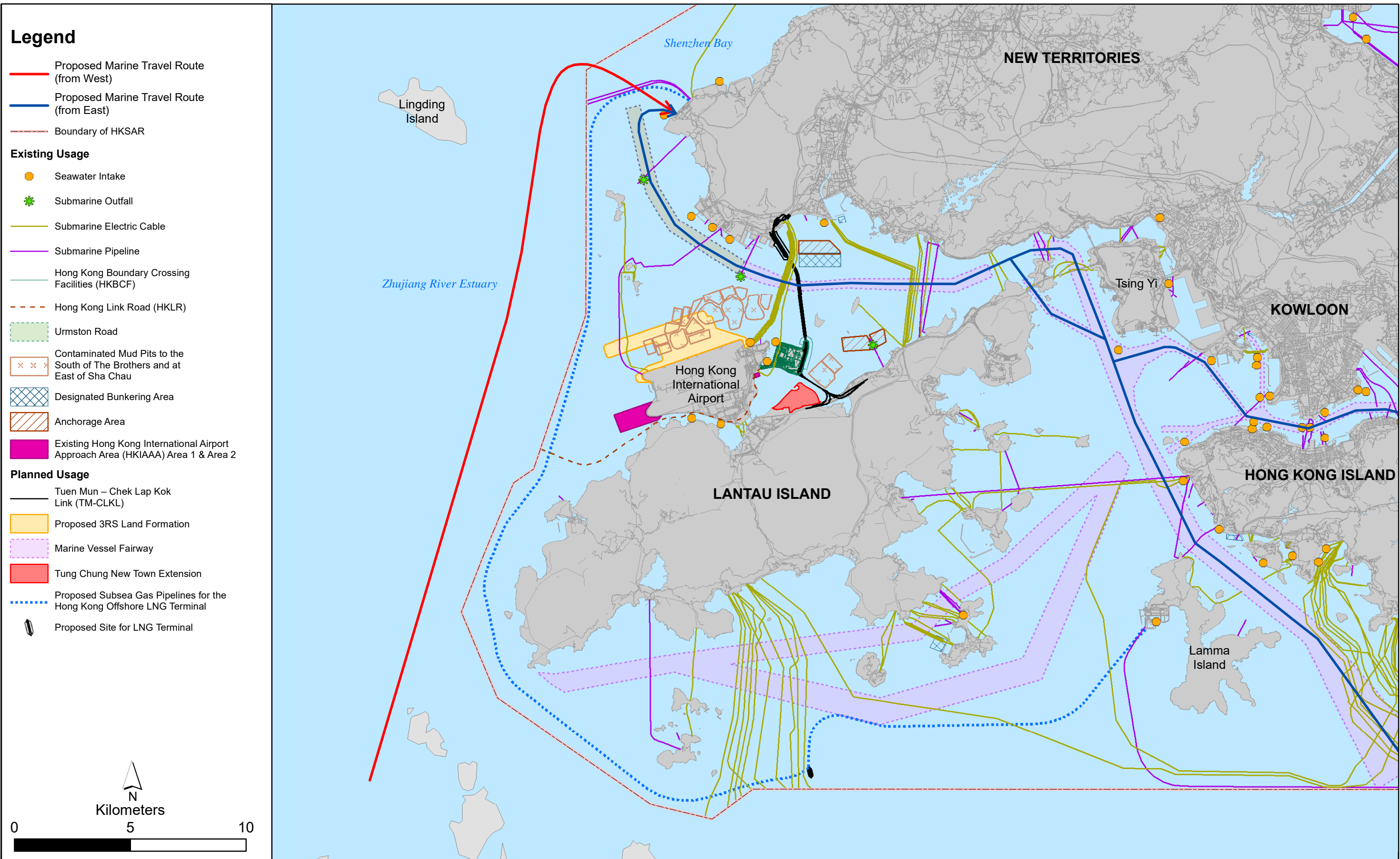


Figure 3.4

Existing or Planned Marine Facilities and Usage along the Proposed Predefined and Regular Marine Travel Routes

important areas and other existing and planned marine usages, the Vessel Control Plan will be reviewed and updated as and when necessary.

4. BRIEFING TO THE VESSEL OPERATORS

4.1 Background

All vessel operators working on the Project construction and operation will be given a briefing, alerting them to the possible presence of dolphins, and the guidelines for safe vessel operation in the presence of cetaceans. The ET will provide a briefing to all vessel operators working on the Project to reduce potential impacts on Indo-Pacific humpback dolphins. The briefing shall include:

- Predefined and regular travel routes for the Project construction and operation, as well as the speed limit of 10 knots within the areas identified as high presence of Indo-Pacific humpback dolphins and existing and planned Marine Parks (discussed in *Section 3*);
- General education on local cetaceans, especially on Indo-Pacific humpback dolphins;
- Guidelines for safe vessel operation in the presence of cetaceans;
- Guidelines on effluent /wastewater handling from vessels to prevent avoidable water quality impacts; and
- Policy of no dumping of rubbish, food, oil, or chemicals from vessels.

The ET shall organise the briefings with individual vessel contractors and shall ensure all vessel operators working on the Project construction and operation are adequately briefed and trained prior to the Project works by the vessel operators.

The briefing materials will be prepared by the ET and will be reviewed and updated regularly as appropriate during the construction and operation of the Project. The ET will conduct the briefing and refresher courses as and when required (e.g. in the event that the predefined travel route is updated), to ensure that the vessels shall operate in a dolphin-friendly manner, thus reducing potential impacts on Indo-Pacific humpback dolphins. All relevant materials and records shall be kept by the ET and made available to the IEC, CAPCO and the Environmental Protection Department (EPD) upon request.

4.2 General Education on Local Cetaceans

The ET shall provide general information on local cetaceans to the vessel operators, including:

- Cetacean species recorded in Hong Kong;
- Distribution, abundance and habitat use of the local cetacean species; and
- Social organisation, behaviour, life history and conservation status of the Indo-Pacific humpback dolphins.

4.3 Guidelines for Safe Vessel Operation in the Presence of Cetaceans

One of the possible threats to the cetaceans in Hong Kong waters is vessel collision, which could be minimised through controlled vessel operation. With reference to the “*Code of Conduct for Dolphin Watching Activities*”⁽¹⁾ published by the Agriculture, Fisheries and Conservation Department (AFCD), the following control measures are recommended and will be covered in the briefing:

- All vessel operators working on the Project construction and operation shall slow down prior to passing through the locations identified as high presence of Indo-Pacific humpback dolphins (see *Section 2*) to avoid disturbance / collisions to cetaceans;
- All vessel operators working on the Project construction and operation shall follow a speed limit of 10 knots within areas identified as high presence of Indo-Pacific humpback dolphins (see *Section 2*);

(1) http://www.afcd.gov.hk/english/conservation/con_mar/con_mar_chi/con_mar_chi_chi/con_mar_chi_chi_con_is.html

- All vessel operators working on the Project construction and operation shall avoid travelling through existing and planned Marine Parks wherever possible. Should the vessels enter these areas, a speed limit of 10 knots shall be followed;
- All vessel operators working on the Project construction and operation shall slow down to no-wake speed and stop if cetaceans appear directly ahead within 100m; and
- All vessel operators working on the Project construction and operation shall not conduct reverse throttling when cetaceans are nearby.

By observing these measures, vessels will be operated in an appropriate manner so that cetaceans will not be subject to undue disturbance or harassment.

4.4 Guidelines on Effluent / Wastewater Handling and Waste Management

Another possible threat to the cetaceans in Hong Kong waters is water pollution. All the vessel operators must ensure compliance with relevant environmental legislation and regulations, including:

- Water Pollution Control Ordinance (Cap. 358);
- The Technical Memorandum - Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters (TM-DSS) (Cap. 358AK);
- International Convention for the Prevention of Pollution from Ships (MARPOL 73/78);
- Waste Disposal Ordinance (Cap. 354);
- Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354C);
- Dumping at Sea Ordinance (Cap. 466);
- Public Cleansing and Prevention of Nuisances Regulation (Cap. 132BK);
- Marine Parks Ordinance (Cap. 476); and
- Marine Parks and Marine Reserves Regulation (Cap. 476A).

The following control measures are recommended and will be covered in the briefing:

- All vessels shall be cleaned of excess materials before vessel movement;
- Adequate freeboard shall be maintained on vessels to ensure that decks are not washed by wave action;
- All vessels shall not be permitted to release any foam, oil, grease or other objectionable matter into the waters;
- All vessels should follow the *International Convention for the Control and Management of Ship's Ballast Water and Sediments* to prevent the spread of exotic species or pollutants through ballast water discharge;
- The vessel operators will be required to minimise and collect all effluent from vessels. These kinds of wastewater should be brought back to port and discharged at appropriate collection and treatment system to prevent avoidable water quality impacts;
- A policy of no dumping of rubbish, food, oil, or chemicals will be strictly enforced; and
- Only well-maintained and inspected vessels would be used to limit any potential discharges to the marine environment.

5. SUMMARY AND CONCLUSIONS

It is planned that major equipment for the Project will be transported to the Project Site by barges, as far as practicable, in order to minimise the number of additional truck trips on the roads due to the construction and operation of the Project. This *Vessel Control Plan* is prepared for the Project to present the details of the control measures to be implemented to reduce the potential construction and operation impact from the Project on Indo-Pacific humpback dolphins.

Predefined and regular marine travel routes are proposed for the Project, one travelling from the west through Pearl River Estuary and one travelling from the east through Tathong Channel / East Lamma Channel, Ma Wan Fairway /Kap Shui Mun Fairway and Castle Peak Fairway/ Urmston Road Fairway. It is expected that high-speed vessels will not be used for the Project. All vessel operators working on the Project construction and operation shall avoid travelling through existing and planned Marine Parks and areas with high presence of Indo-Pacific humpback dolphins wherever possible. Should the vessels enter these areas, a speed limit of 10 knots shall be followed.

The record of marine travel routes of the works vessels will be requested by the ET for inspection and monitoring purposes. Warning will be noticed to the vessel operators or vessel suppliers if the predefined and regular marine travel route is not followed.

The ET will provide briefing(s) to all vessel operators working on the Project construction and operation, alerting them to the possible presence of dolphins in the marine works areas, the guidelines for safe vessel operation in the presence of cetaceans, and the guidelines on effluent /wastewater and waste handling from vessels, to reduce potential impacts on Indo-Pacific humpback dolphins.

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