

Figure 9C.2

Intertidal Transect Locations for Seasonal Surveys in 2016 and 2017 at Tau Lo Chau

File: T:\GIS\CONTRACT\0359722\Mxd\0359722\_Proposed\_Intertidal\_Survey\_Location\_at\_TLC.mxd  
Date: 17/4/2018

Environmental  
Resources  
Management



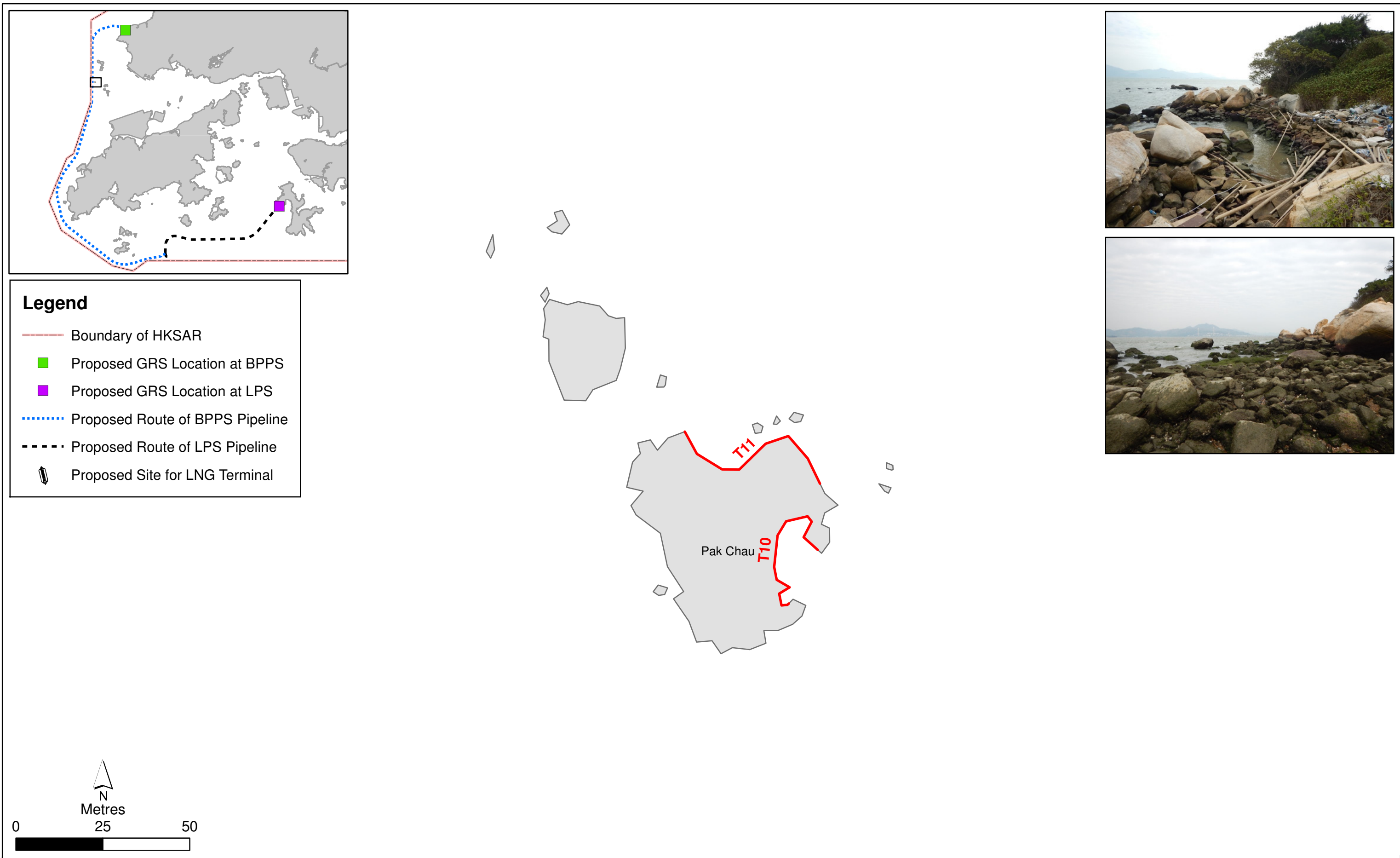


Figure 9C.3

Intertidal Transect Locations for Seasonal Surveys in 2016 and 2017 at Pak Chau



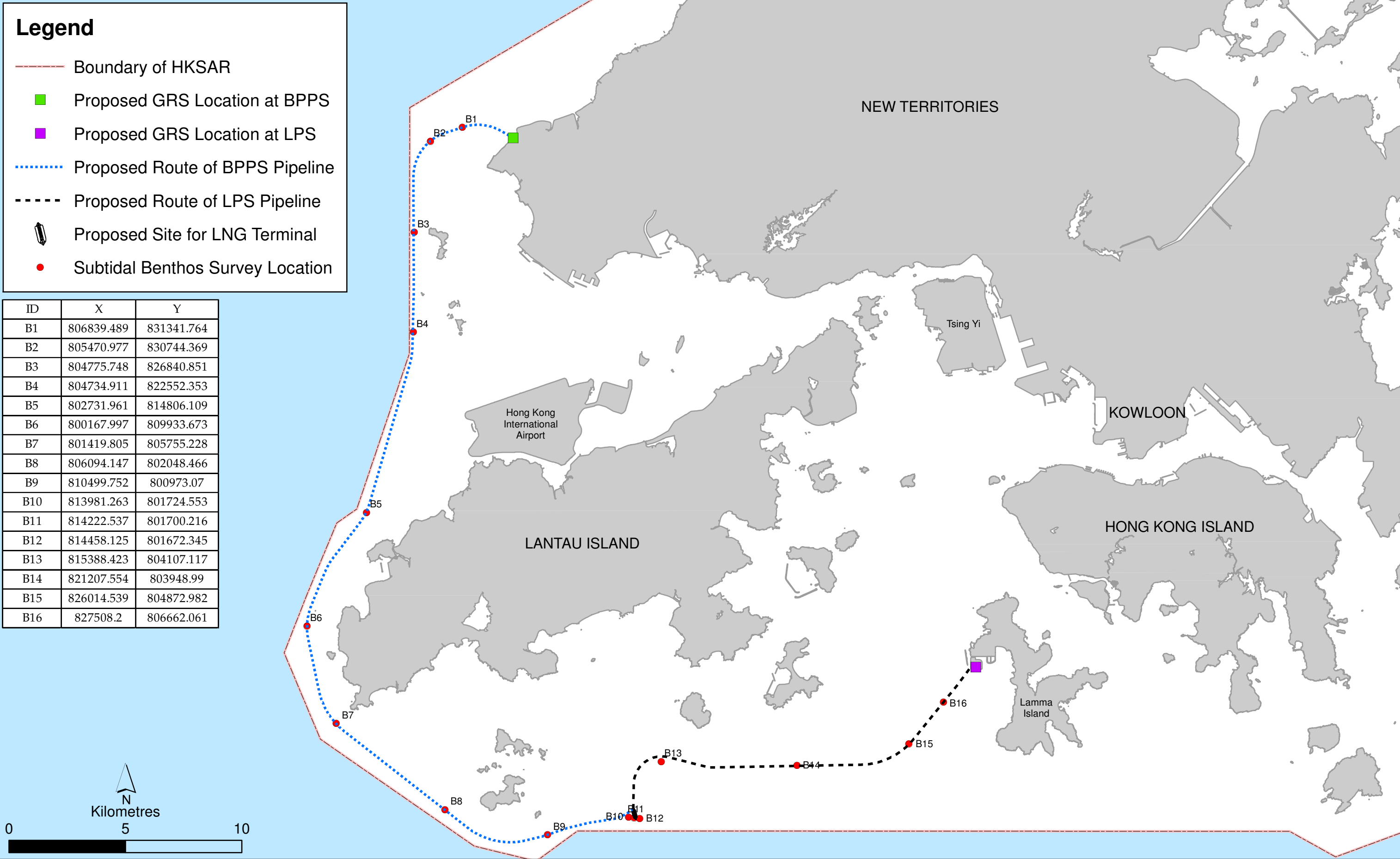


Figure 9C.4

Subtidal Benthos Survey Location



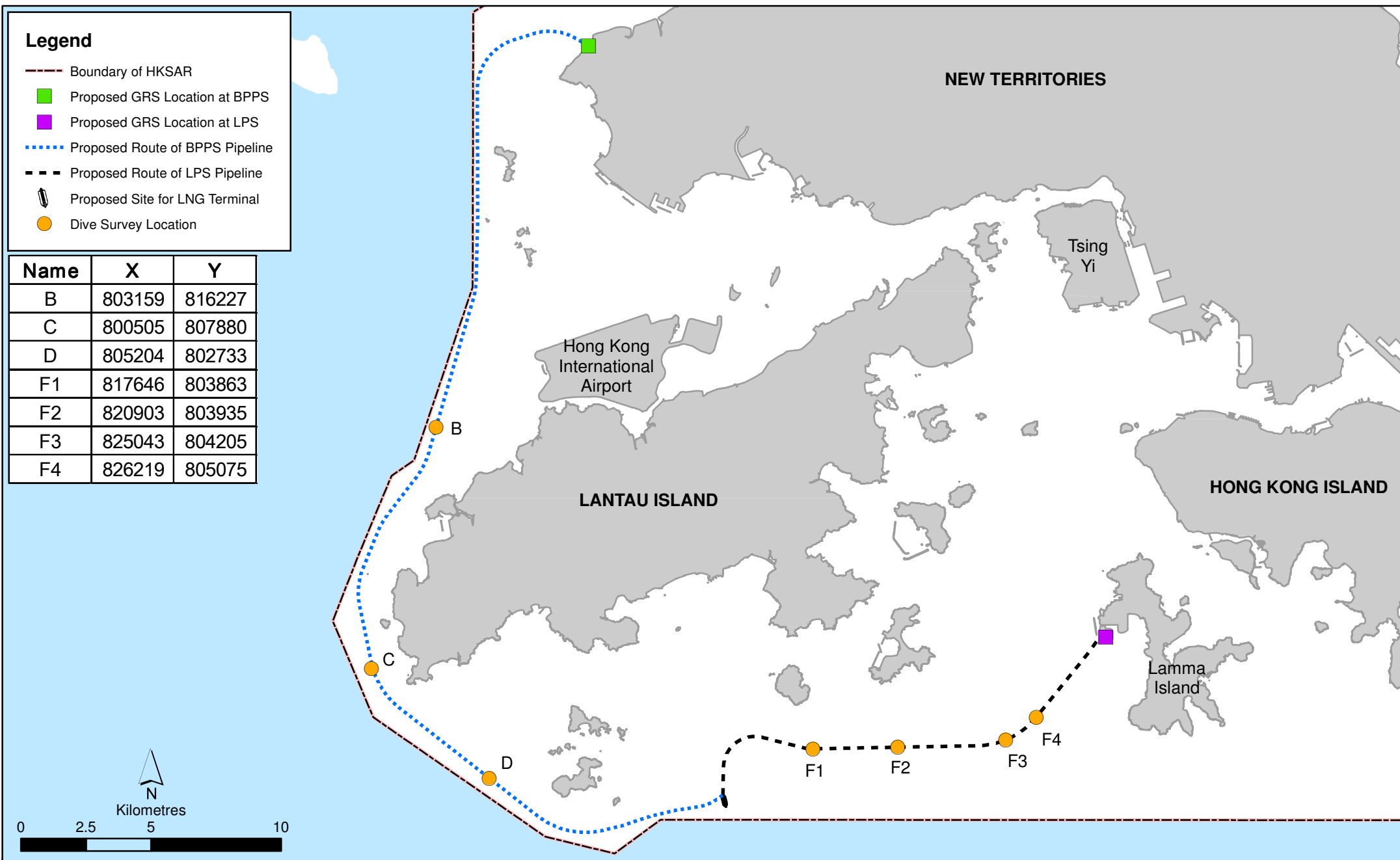


Figure 9C.5

Dive Survey Location



Large boulders from the Seawall with a thin layer of sediment and some bryozoans



Large boulders from the Seawall with *Balanophyllia* sp. and bryozoans



Patches of *Balanophyllia* sp. Recorded on boulders



*Oulastrea crispata* partially covered by sediment



*Tubastrea* / *Dendrophyllia* sp. found on the boulders of the seawall



Alive and dead colonies of *Echinomuricea* sp.

Figure 9C.6

Representative Photographic Records of Seabed and Corals taken during the Subtidal Dive Survey at LPS

DATE: 8/11/2017

Environmental  
Resources  
Management







Natural boulders with shells and mud in between



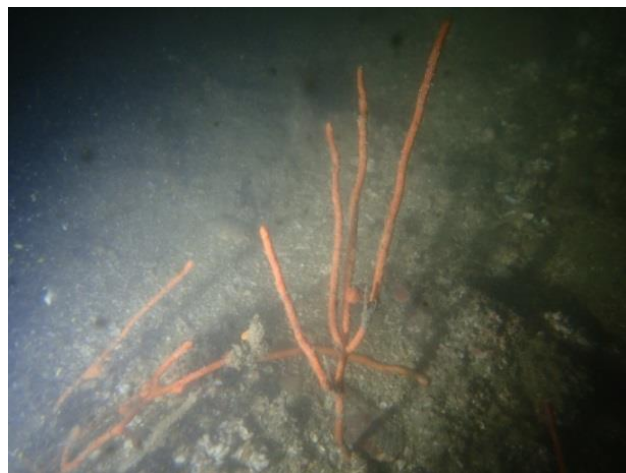
Continuous bedrocks with bryozoans, sponges, sea anemone sand bivalves



Bedrock covered with barnacles and thin layer of silt



*Dendronephthya* sp. found on boulders



*Menella* sp. / *Paraplexaura* sp. recorded on the bed rock



Small colonies of *Echinomuricea* sp. observed on bedrock with shells

Figure 9C.7

Representative Photographic Records of Seabed and Corals taken during the Subtidal Dive Survey at Tau Lo Chau

DATE: 8/11/2017

Environmental  
Resources  
Management







Natural boulders with barnacles



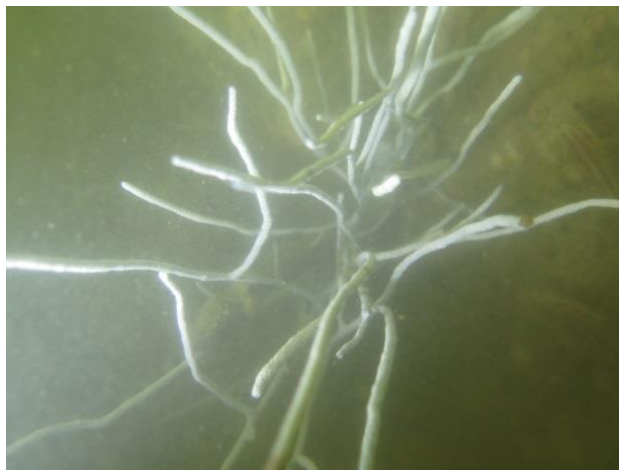
Sand, rubble and shells fragments recorded in between bedrocks and boulders



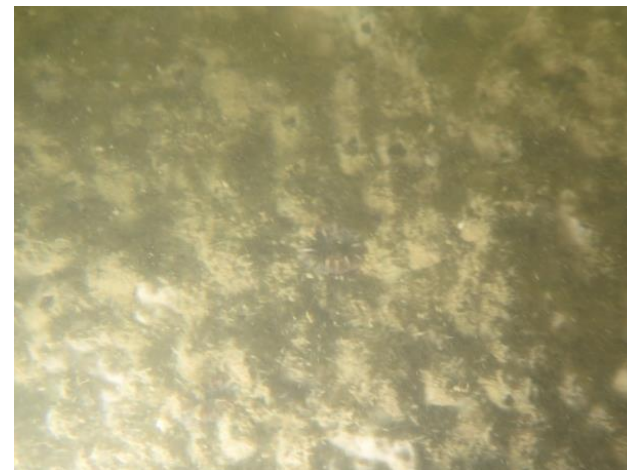
Some *Guaiaigorgia* sp. with partial mortality and covered with thin layer of sediment



*Guaiaigorgia* sp. observed in the crevices of the boulders



*Guaiaigorgia* sp. observed on the bed rock



Patches of *Balanophyllia* sp. and barnacles observed on bedrock

Figure 9C.8

Representative Photographic Records of Seabed and Corals taken during the Subtidal Dive Survey at Yi O

DATE: 8/11/2017

Environmental  
Resources  
Management





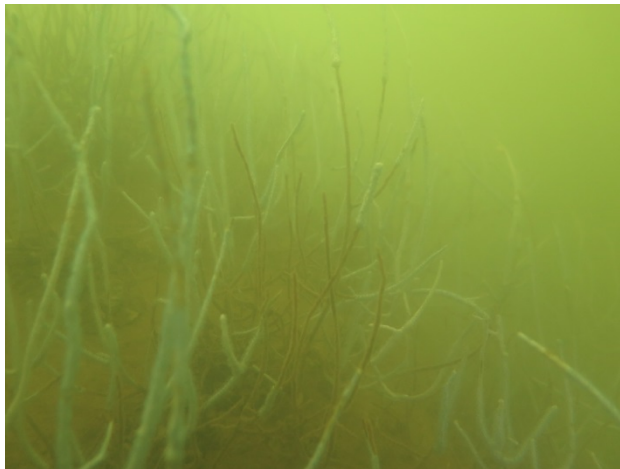
Natural boulders with *Guaiaigorgia* sp.



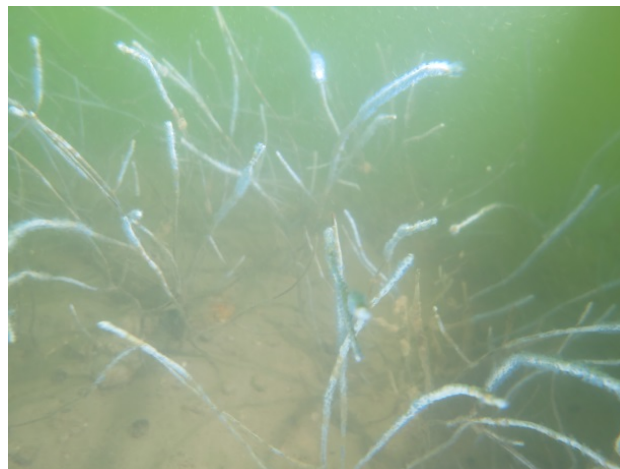
*Guaiaigorgia* sp. Observed in the crevices of the boulders



Some *Guaiaigorgia* sp. covered with thin layer of sediment and showed partial mortality



*Guaiaigorgia* sp. found on bed rocks



Most *Guaiaigorgia* sp. observed to be healthy on the bed rock



Patches of *Balanophyllia* sp. observed on bedrock in between *Guaiaigorgia* sp.

Figure 9C.9

Representative Photographic Records of Seabed and Corals taken during the Subtidal Dive Survey at Pak Chau

DATE: 8/11/2017

Environmental  
Resources  
Management







Muddy substratum with shell fragments  
(Transect B)



Muddy substratum along Transect C



Muddy substratum at Transect D



Muddy substratum at Transect F2



Small colony of *Echinomuricea* sp. observed  
on the isolated small boulders (Transect F1)



Small colony of *Echinomuricea* sp.  
Observed on boulders (Transect F3)

Figure 9C.10

DATE: 8/11/2017

Representative Photographic Records of Seabed and Corals taken during the Subtidal Dive Survey  
along the Proposed pipeline alignment

Environmental  
Resources  
Management





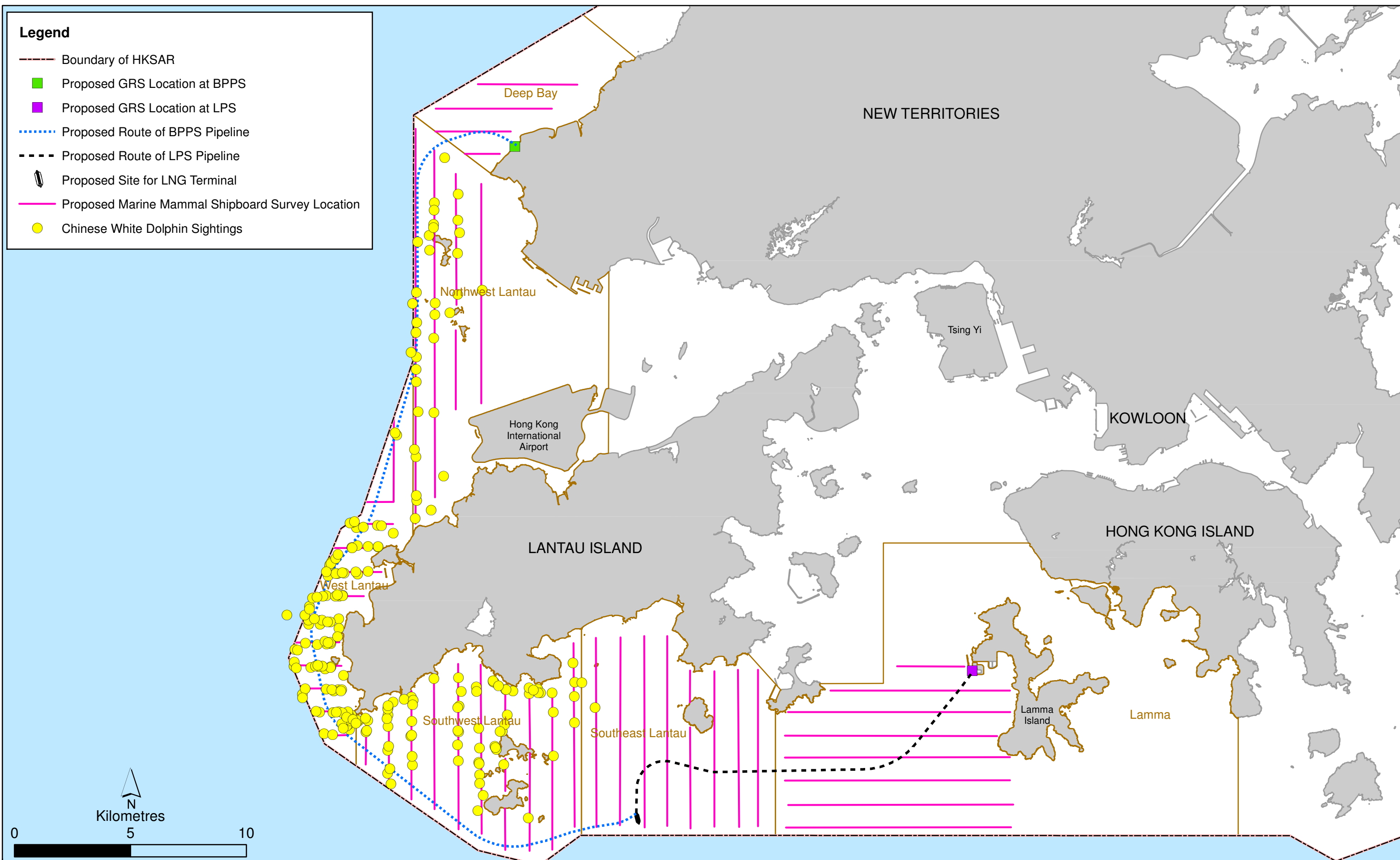


Figure 9C.11

Distribution of Chinese White Dolphin Sightings during Marine Mammal Shipboard Survey from June 2016 to May 2017

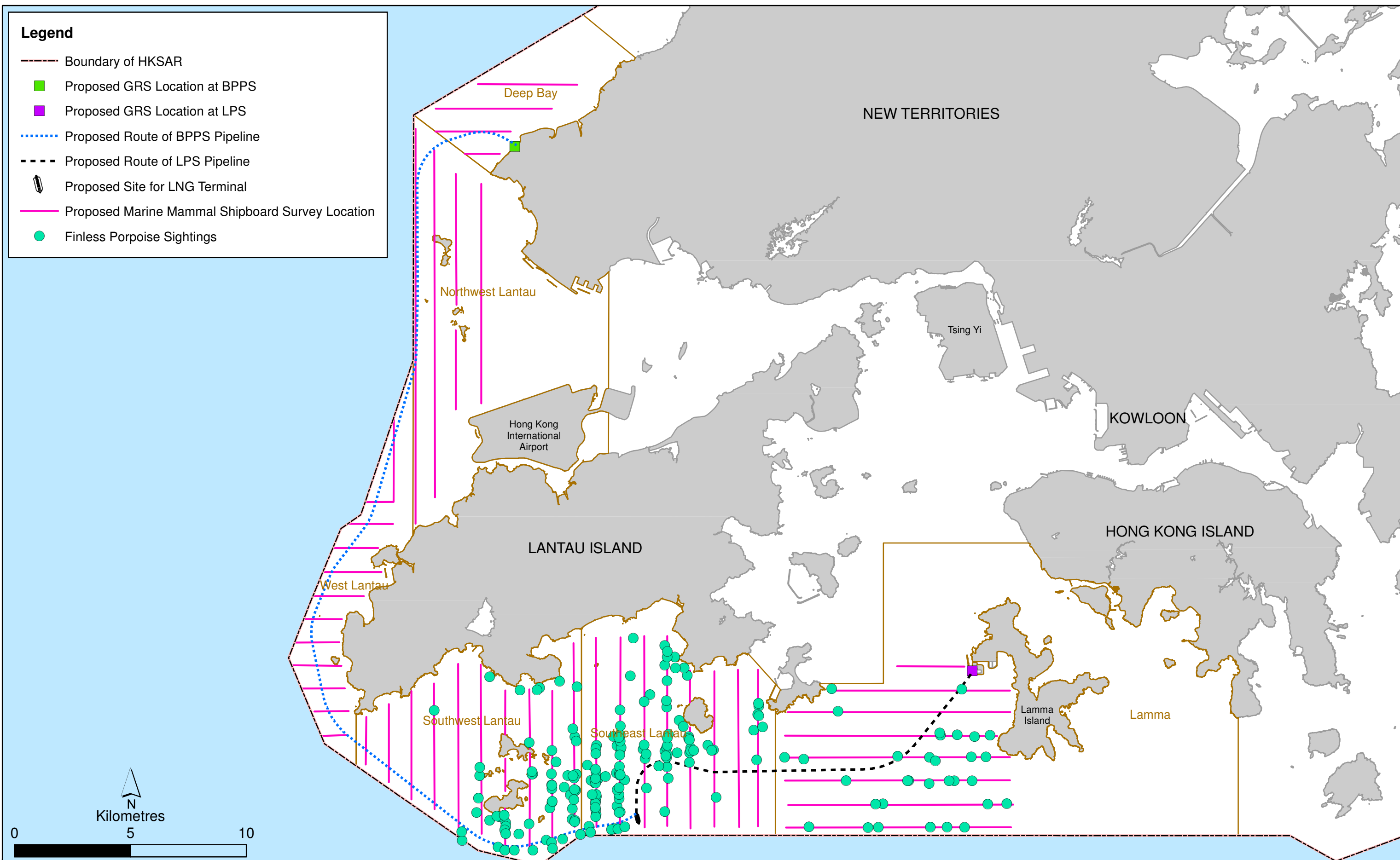
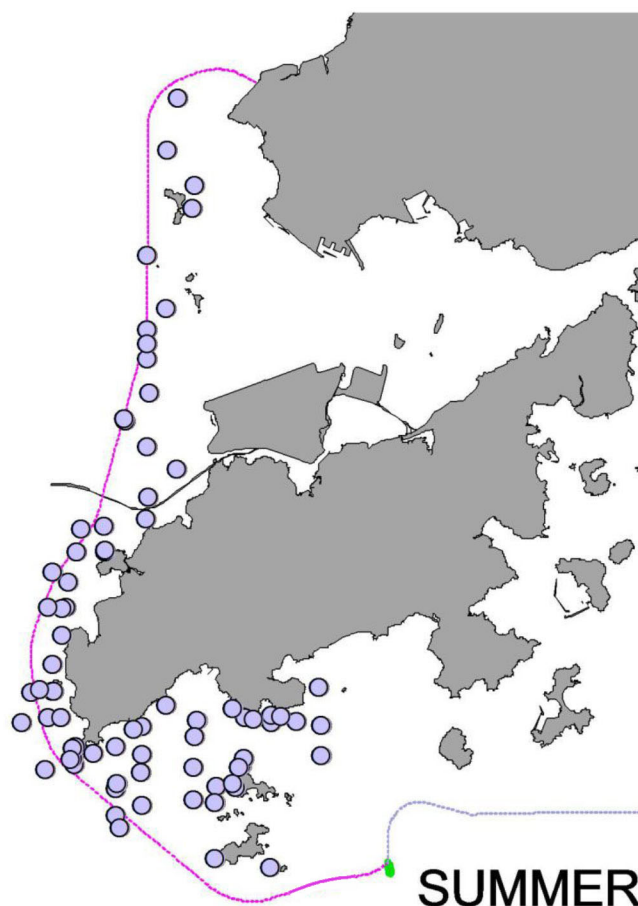


Figure 9C.12

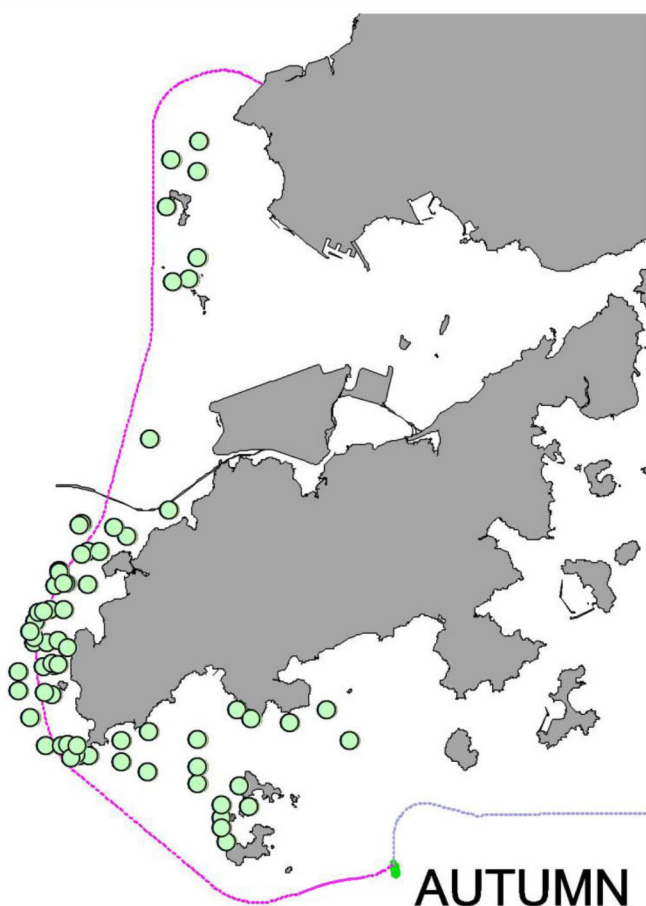
Distribution of Finless Porpoise Sightings during Marine Mammal Shipboard Survey from June 2016 to May 2017



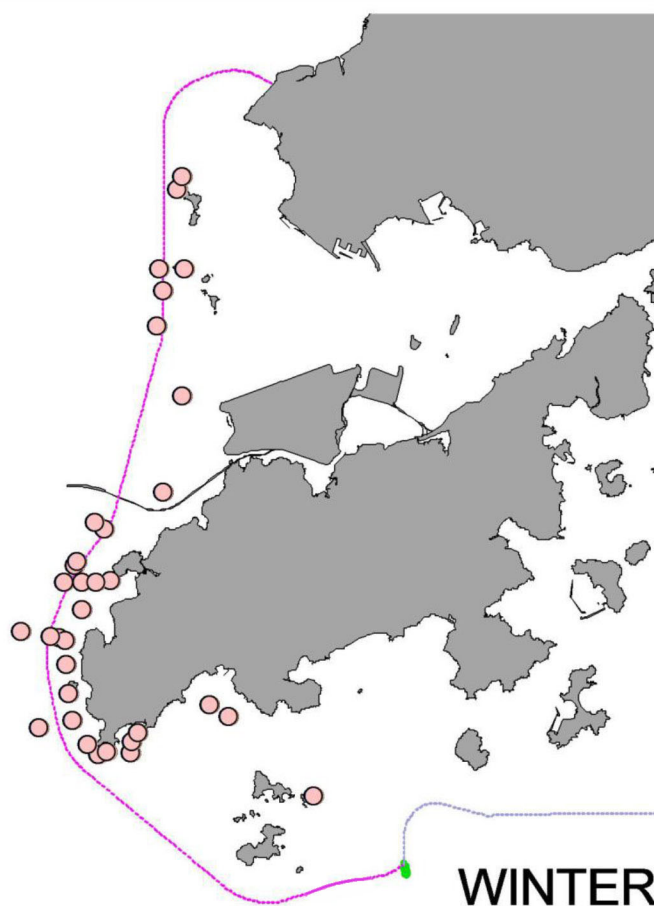
**SPRING**



**SUMMER**



**AUTUMN**



**WINTER**

Figure 9C.13

Distribution of Chinese White Dolphin Sightings among different seasons  
During Marine Mammal Shipboard Surveys from June 2016 to May 2017



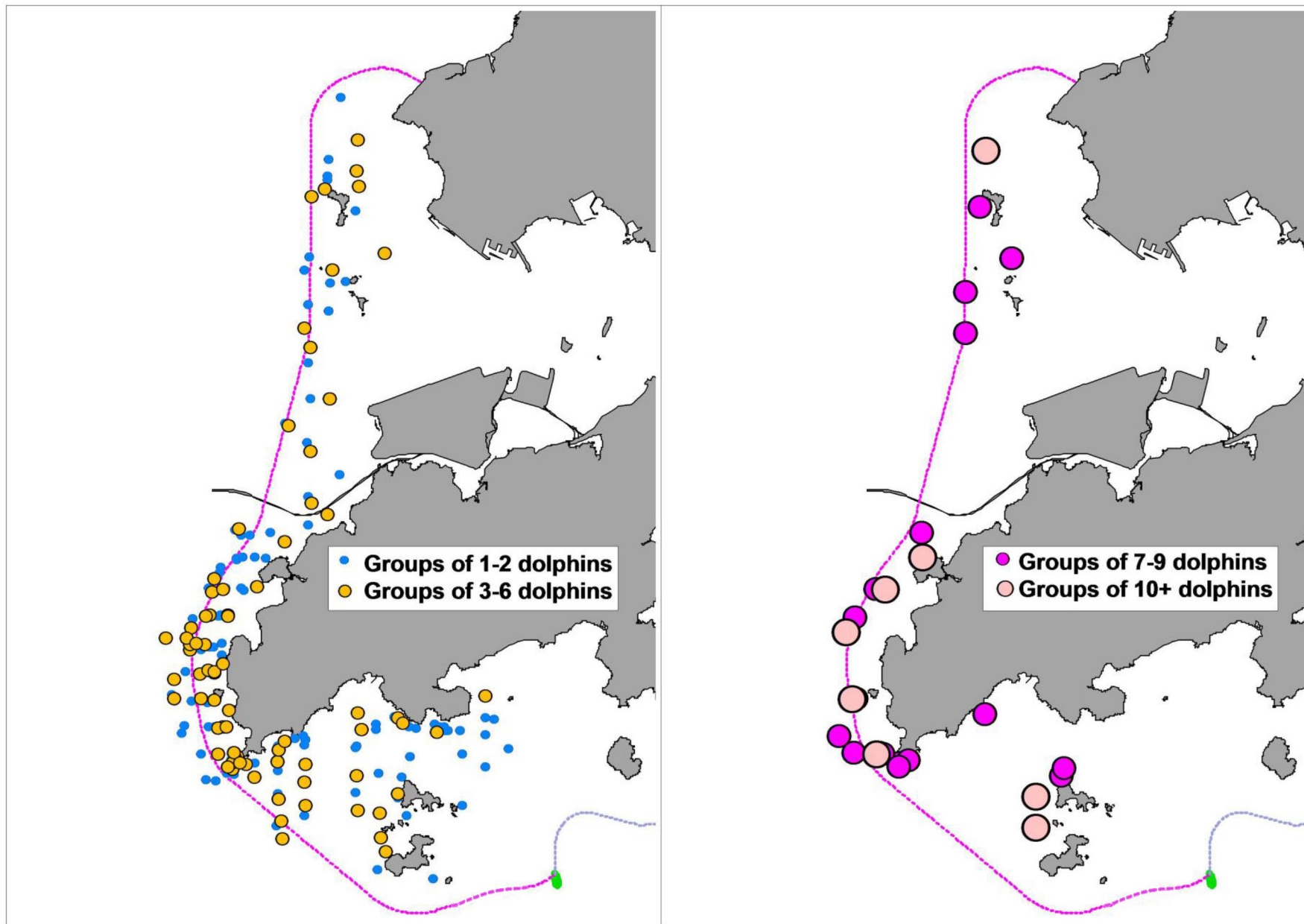


Figure 9C.14

Distribution of Chinese White Dolphin with Different Group Sizes during Marine Mammal Shipboard Survey from June 2016 to May 2017

### Legend

- Unspotted Juveniles Sightings
- Unspotted Calves Sightings

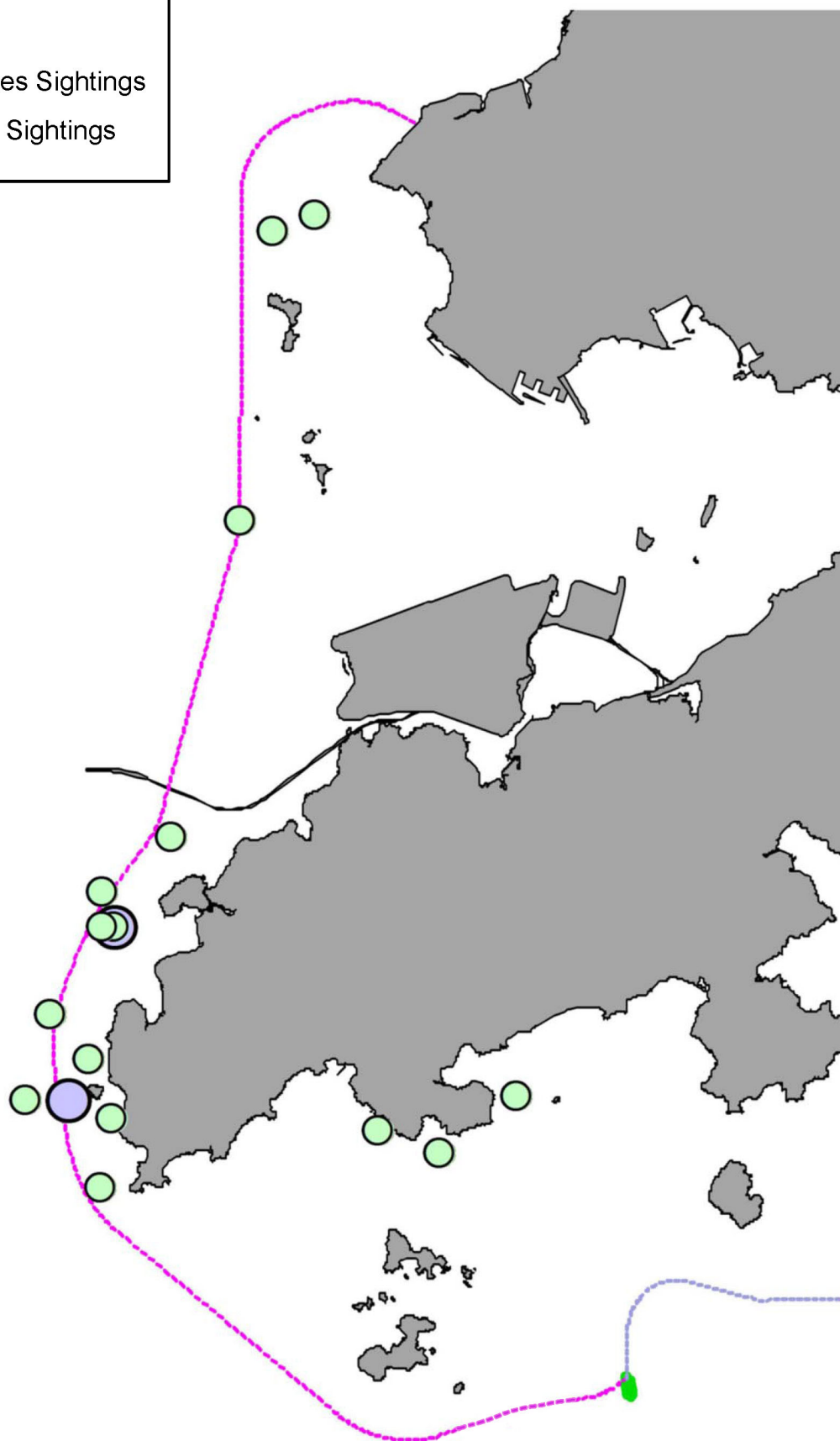


Figure 9C.15 Distribution of Unspotted Calves and Unspotted Juveniles during Marine Mammal Shipboard Surveys from June 2016 to May 2017

# Legend

- Sightings with feeding activity
- Sightings with socializing activity
- Sightings with traveling activity
- Sightings with resting/ milling activity

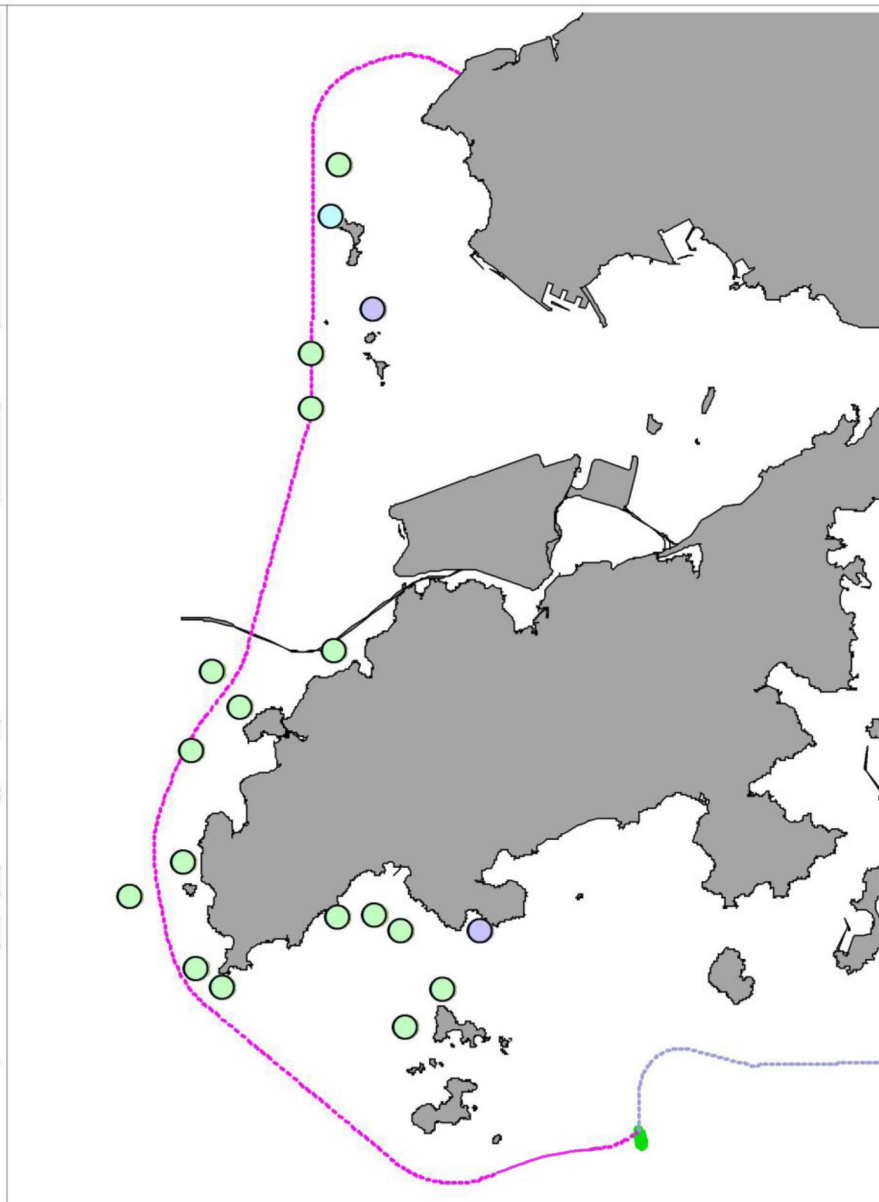
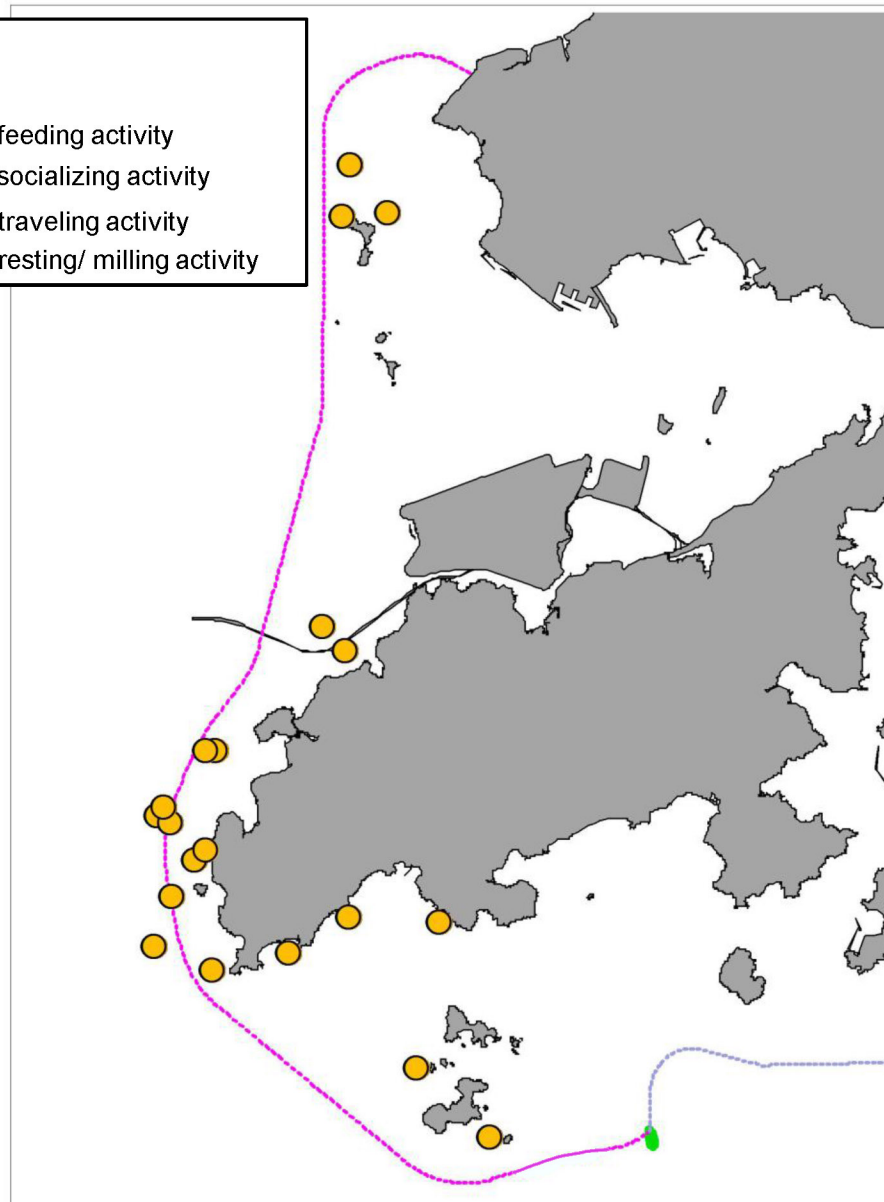


Figure 9C.16

Distribution of Chinese White Dolphin Engaged in Feeding, Socializing, Traveling and Resting/ Milling Activities during Marine Mammal Shipboard Survey from June 2016 to May 2017



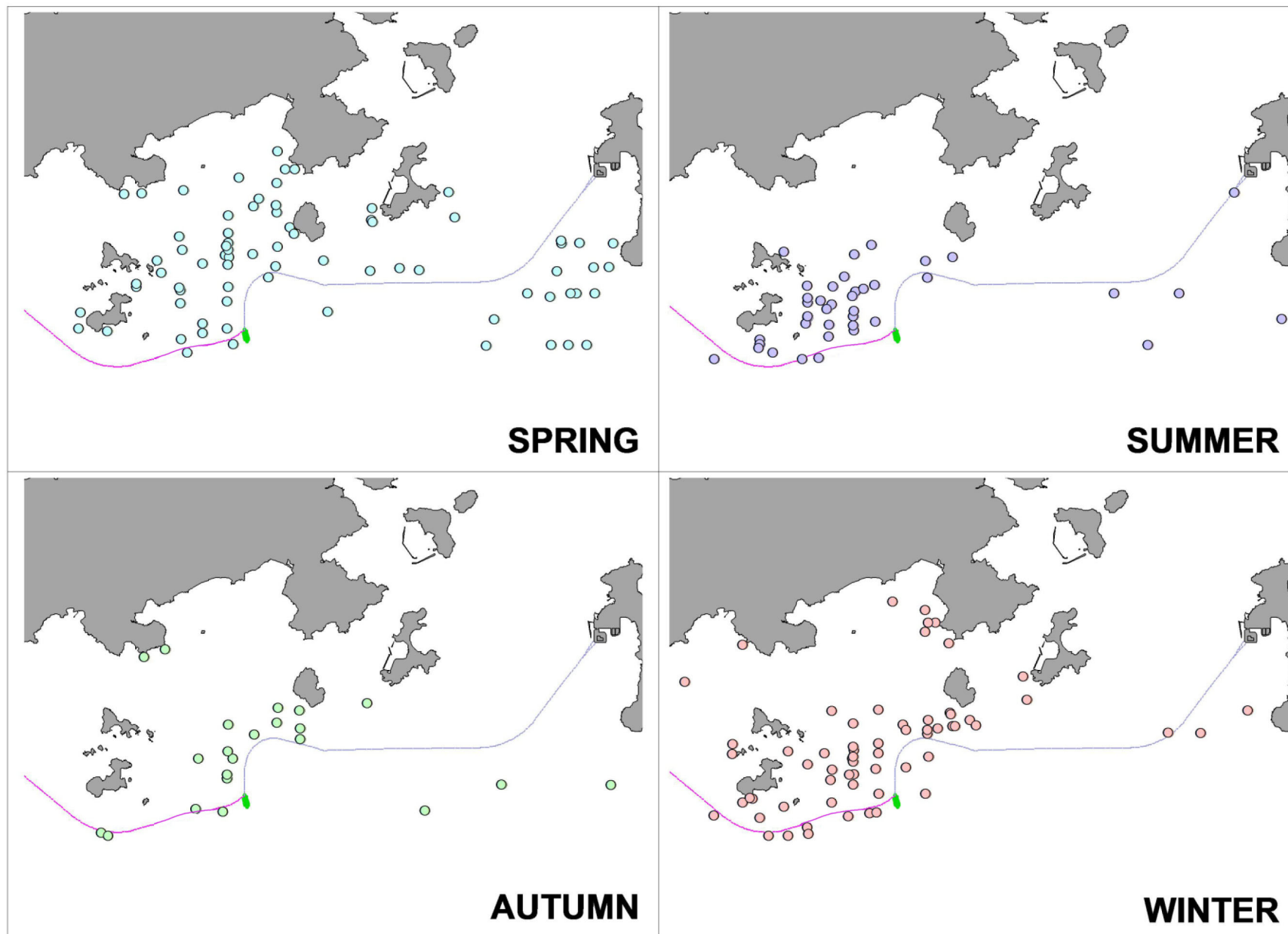


Figure 9C.17

Distribution of Finless Porpoise Sightings among different seasons during Marine Mammal Shipboard Survey from June 2016 to May 2017

Environmental  
Resources  
Management



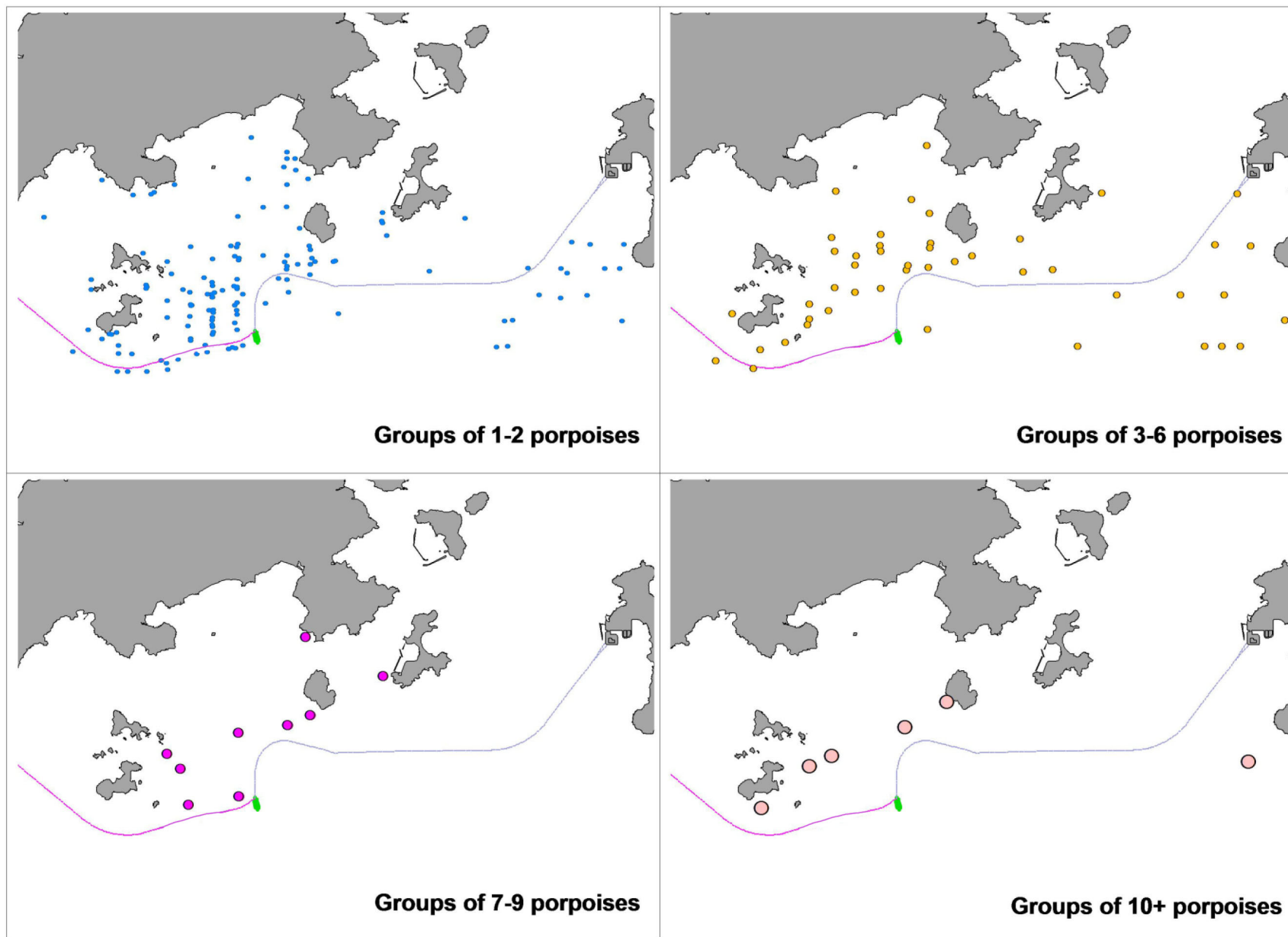


Figure 9C.18

Distribution of Finless Porpoise with Different Group Sizes during Marine Mammal Shipboard Survey from June 2016 to May 2017

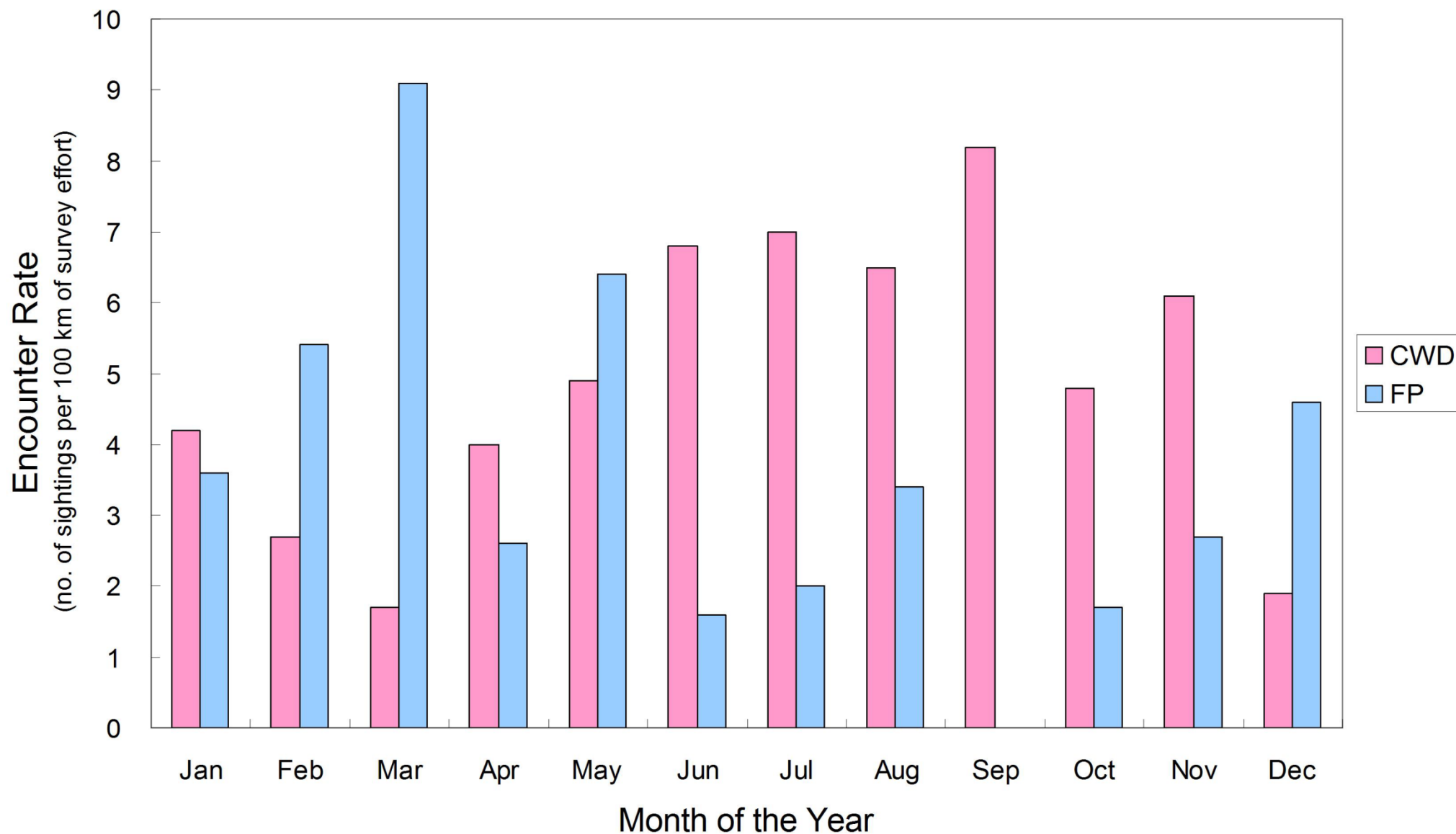


Figure 9C.19

Monthly Variations in Encounter Rates of Chinese White Dolphin (CWD) and Finless Porpoise (FP) during Marine Mammal Shipboard Survey from June 2016 to May 2017



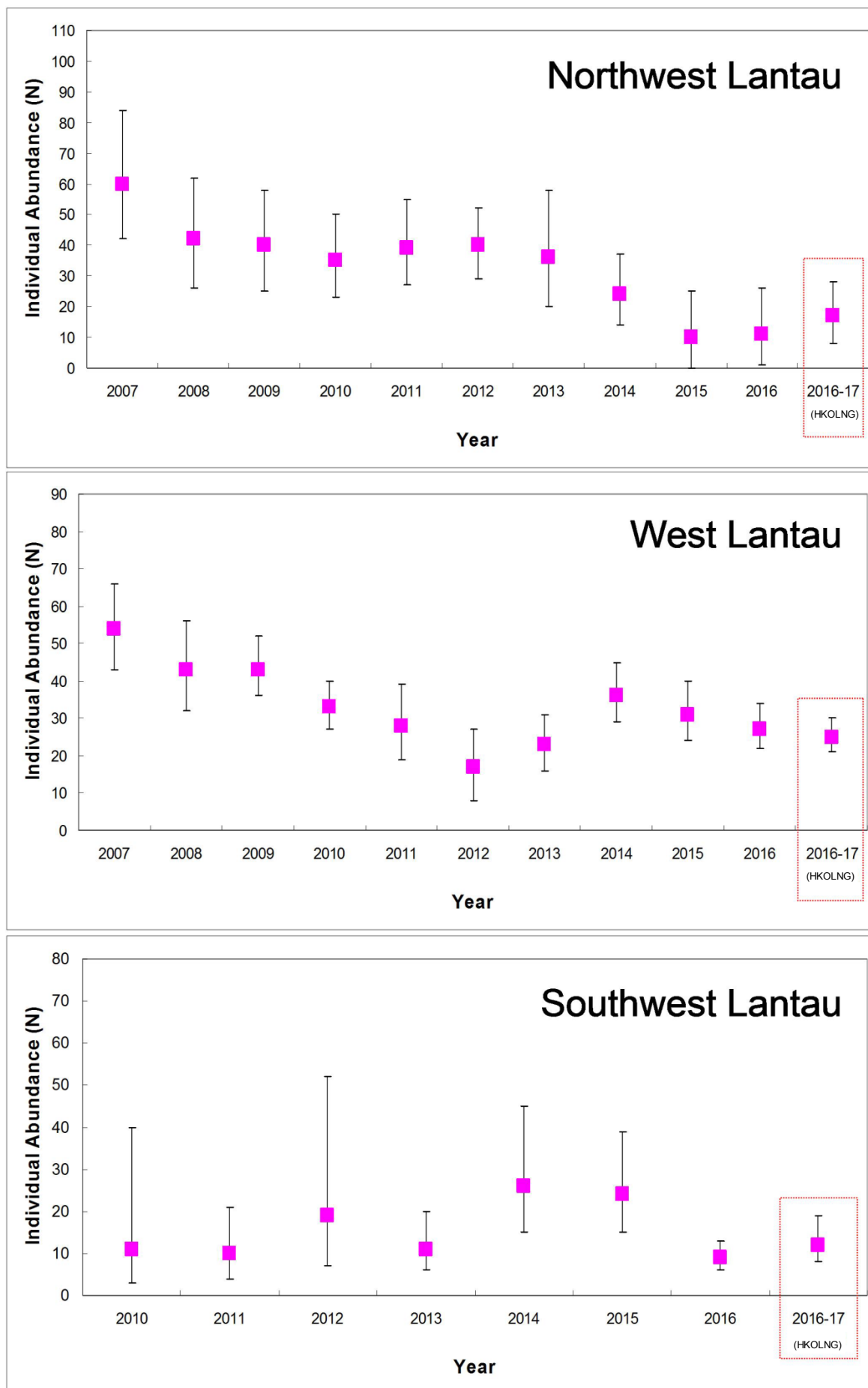


Figure 9C.20

Temporal Trends in Annual Abundance Estimates of Chinese White Dolphin in NWL, WL and SWL in the Past Decade in Comparison with the Estimates during Marine Mammal Shipboard Surveys from June 2016 to May 2017

**Environmental  
Resources  
Management**



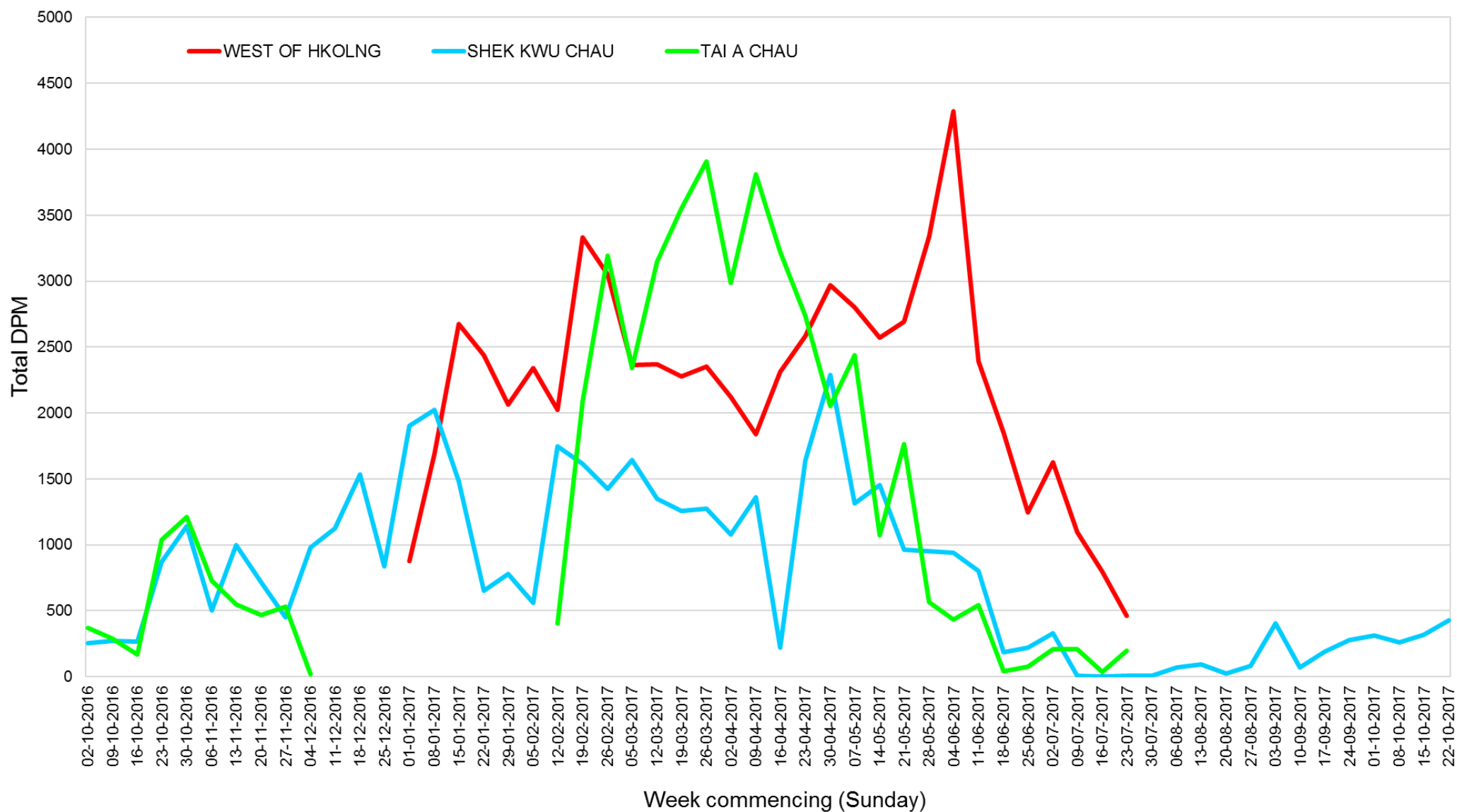


Figure 9C.21

Detection Positive Minutes (DPM) per Week for Finless Porpoises among the Three Deployment Locations  
From October 2016 to October 2017

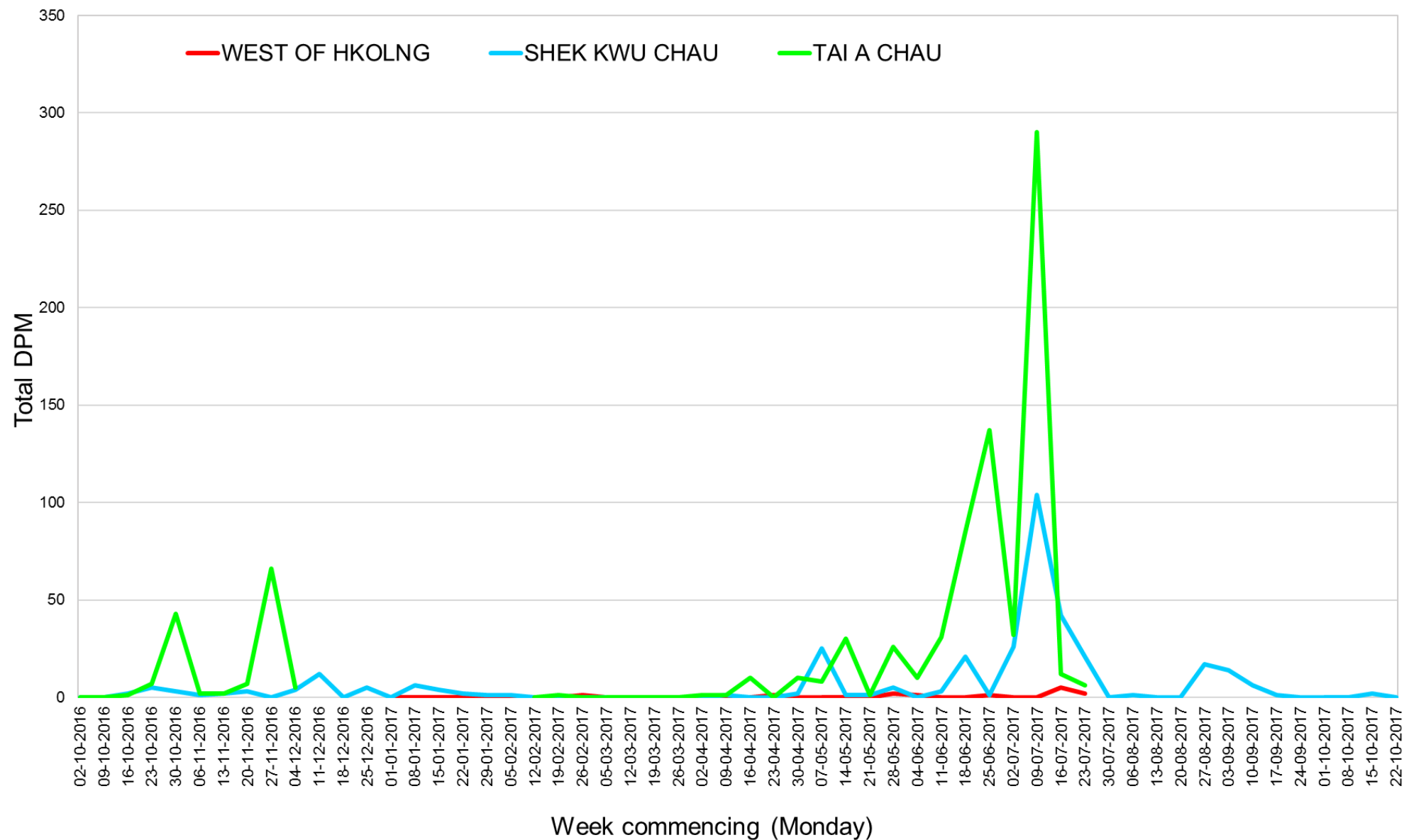


Figure 9C.22

Detection Positive Minutes (DPM) per Week for Chinese White Dolphin among the Three Deployment Locations  
From October 2016 to October 2017



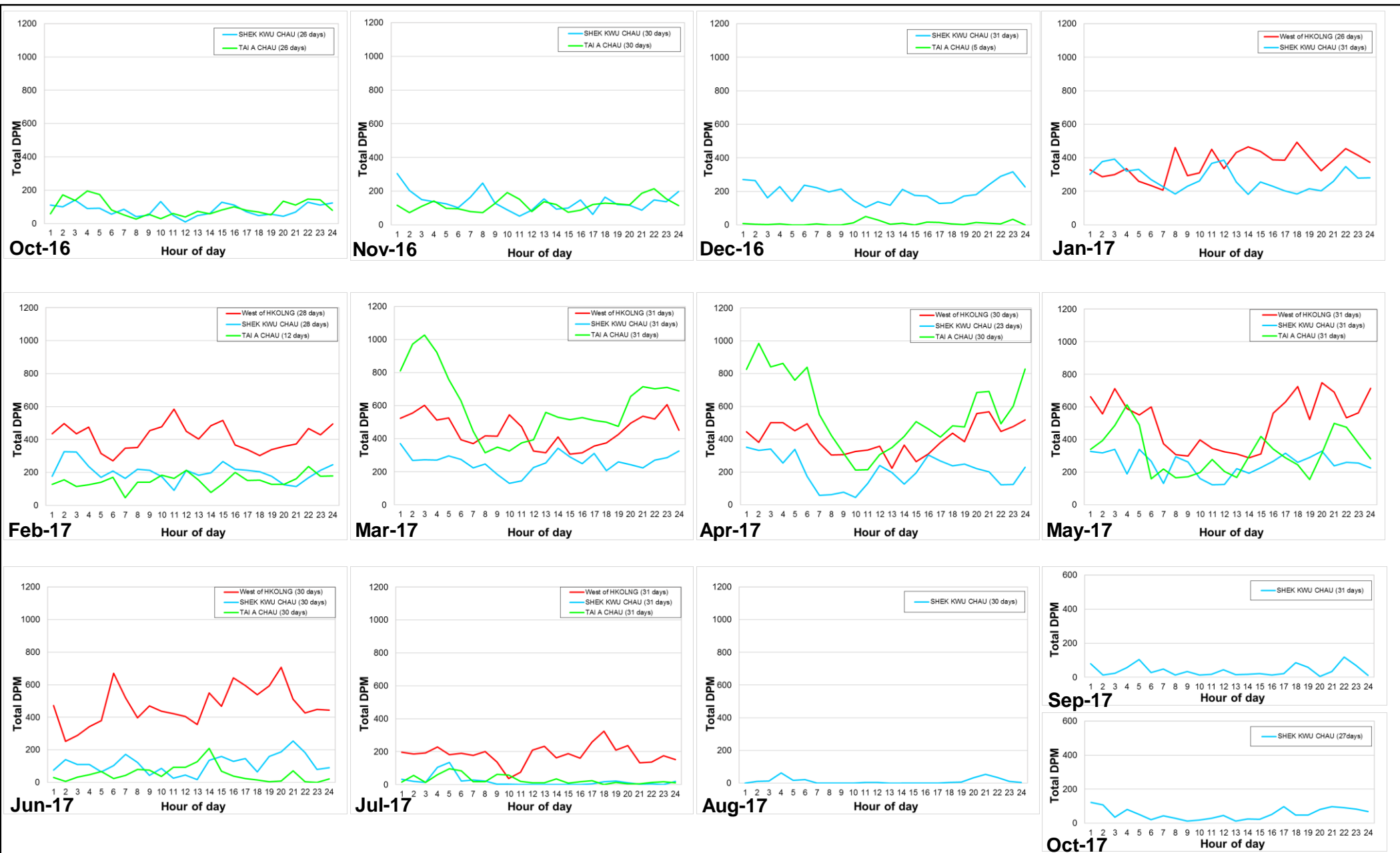


Figure 9C.23

Monthly Comparisons on DPM Diel Patterns of Finless Porpoises among the Three Deployment Locations from October 2016 to October 2017

Environmental  
Resources  
Management



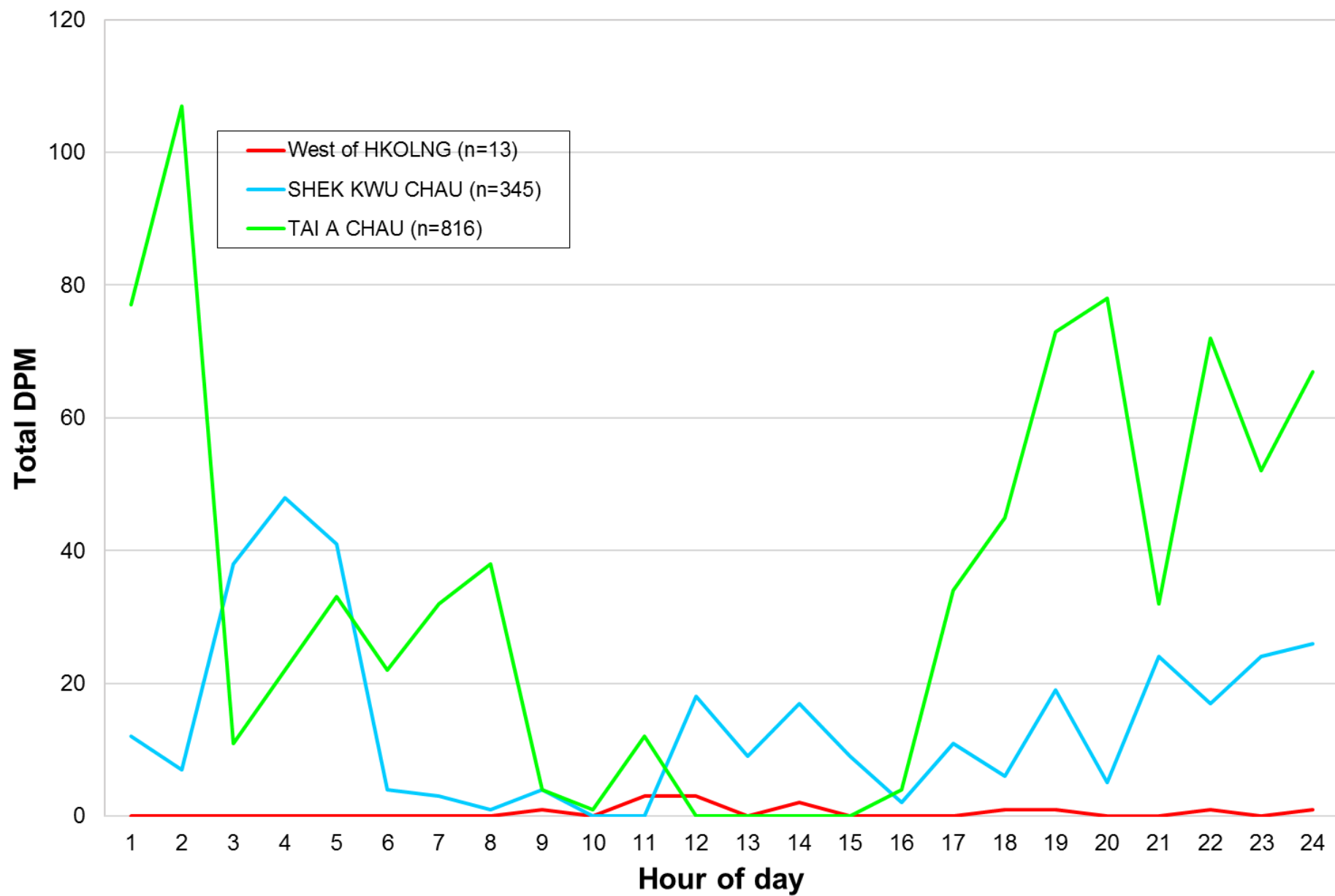


Figure 9C.24

DPM Diel Patterns of Chinese White Dolphin among the Three Deployment Locations  
 from October 2016 to October 2017

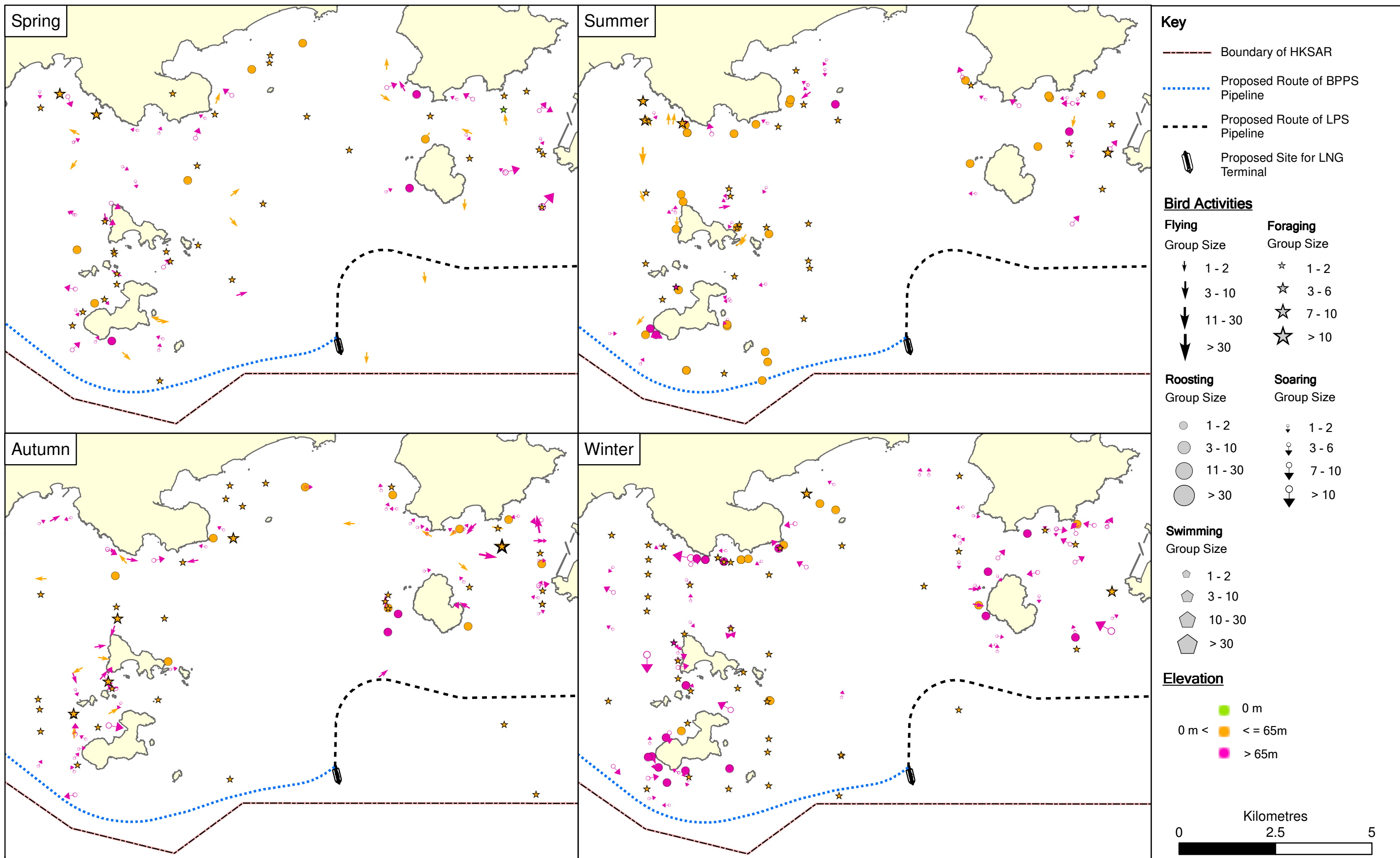


Figure 9C.25

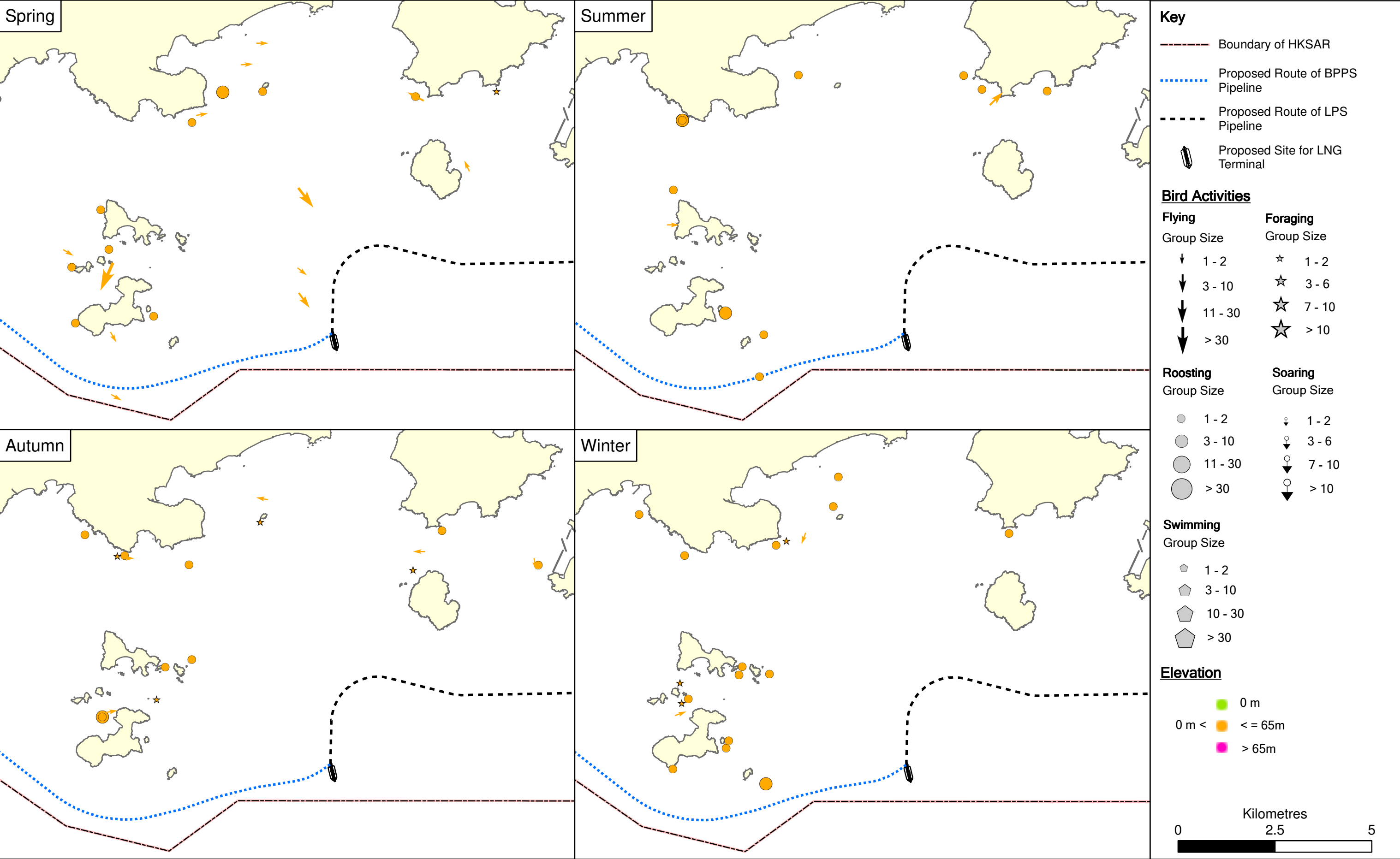
Seasonal Variation of the Distribution of Birds of Prey in the Avifauna Assessment Area during July 2016 to June 2017  
(Total effective survey trips = 24)

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Date: 17/4/2018

**Environmental  
Resources  
Management**







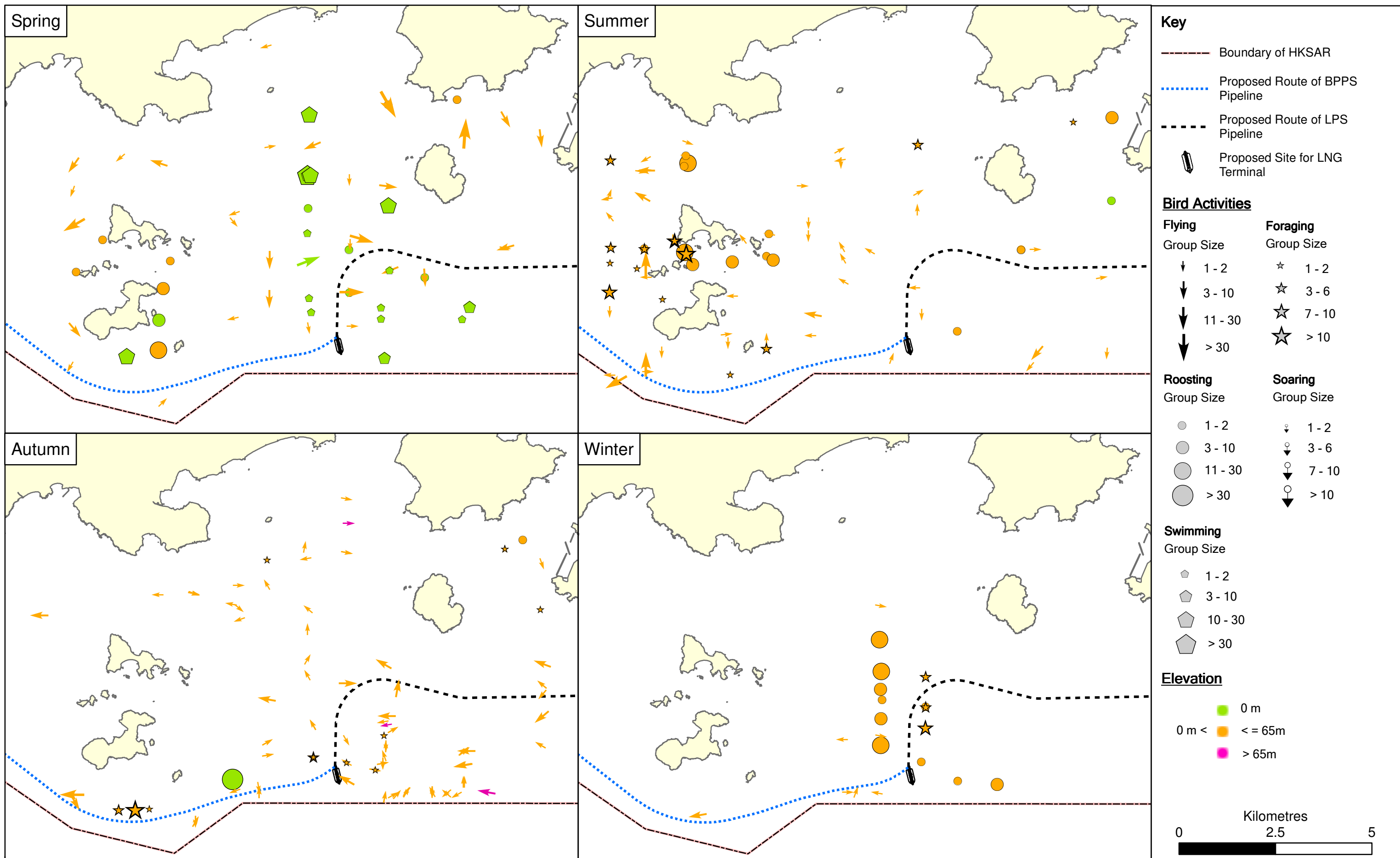


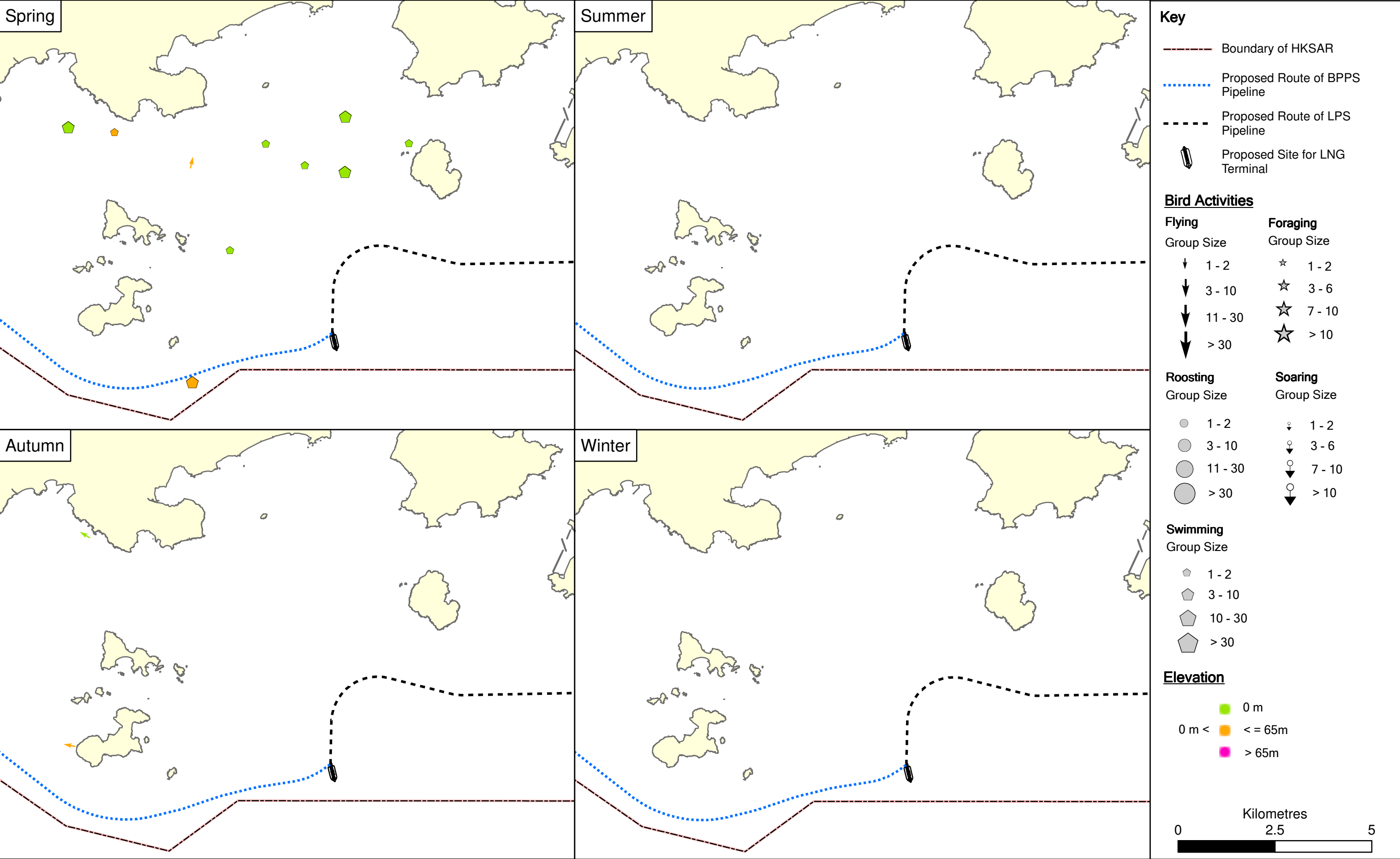
Figure 9C.27

Seasonal Variation of the Distribution of Gulls and Terns in the Avifauna Assessment Area during July 2016 to June 2017  
(Total effective survey trips = 24)

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Date: 17/4/2018

**Environmental  
Resources  
Management**





**Figure 9C.28**

**Seasonal Variation of the Distribution of Seabirds (excluded Gulls & Terns) in the Avifauna Assessment Area during July 2016 to June 2017**

(Total effective survey trips = 24)

File: T:\GIS\CONTRACT\0359722\Mxd\Avifauna\0359722\_Avifauna\_Seabirds.mxd  
Date: 23/4/2018

**Environmental Resources Management**



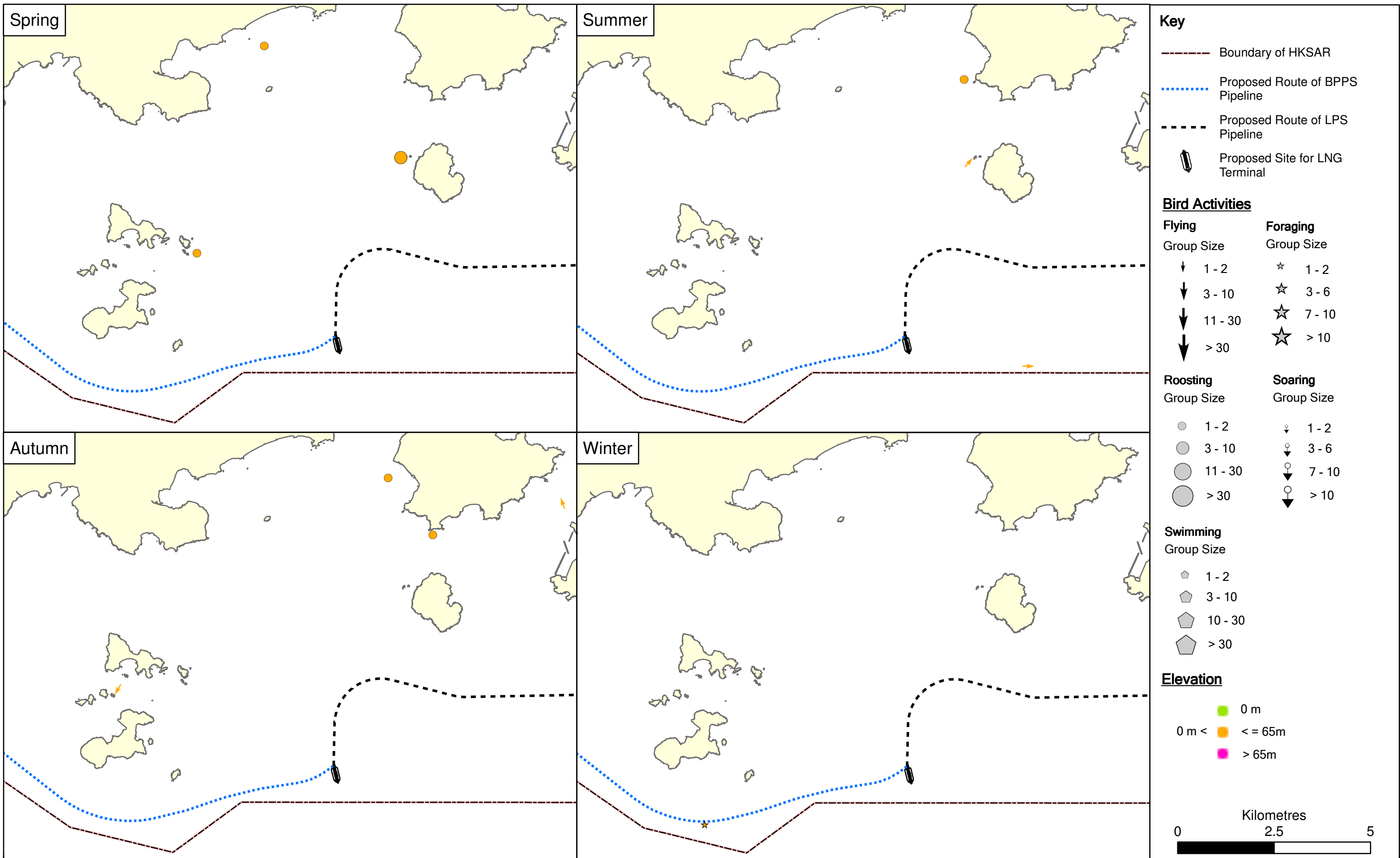


Figure 9C.29 Seasonal Variation of the Distribution of Waterbirds & Wetland Dependent Birds (excluded Egrets & Herons) in the Avifauna Assessment Area during July 2016 to June 2017 (Total effective survey trips = 24)

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Date: 23/4/2018

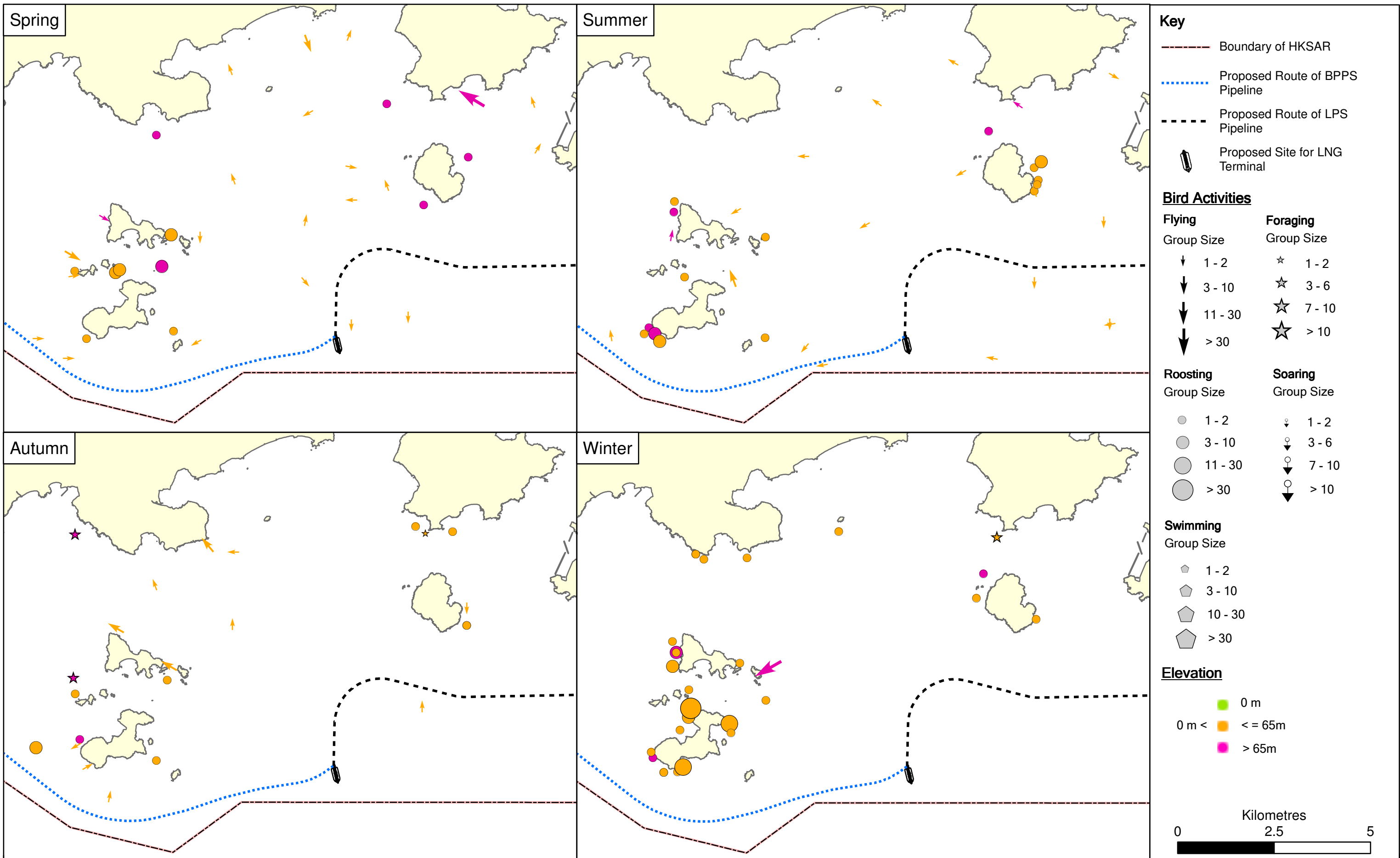


Figure 9C.30  
Seasonal Variation of the Distribution of the Others (Landbirds) in the Avifauna Assessment Area during July 2016 to June 2017  
(Total effective survey trips = 24)

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**Environmental  
Resources  
Management**



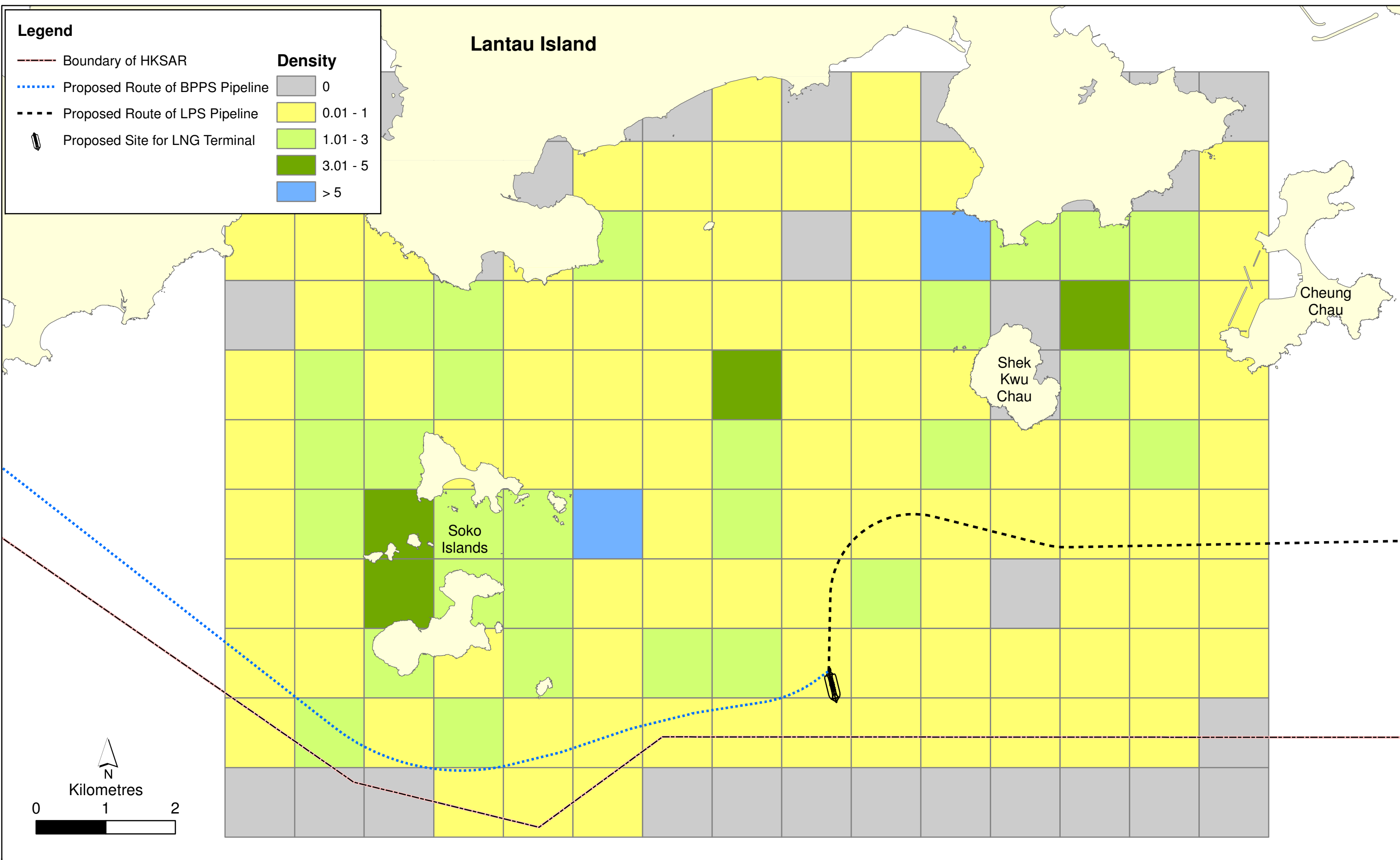


Figure 9C.31

Overall Bird Density in the Avifauna Assessment Area during July 2016 to June 2017  
(Total Effective Survey Trips = 24, Under Sea Condition of Beaufort  $\leq 5$ )

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Date: 18/4/2018

**Environmental  
Resources  
Management**



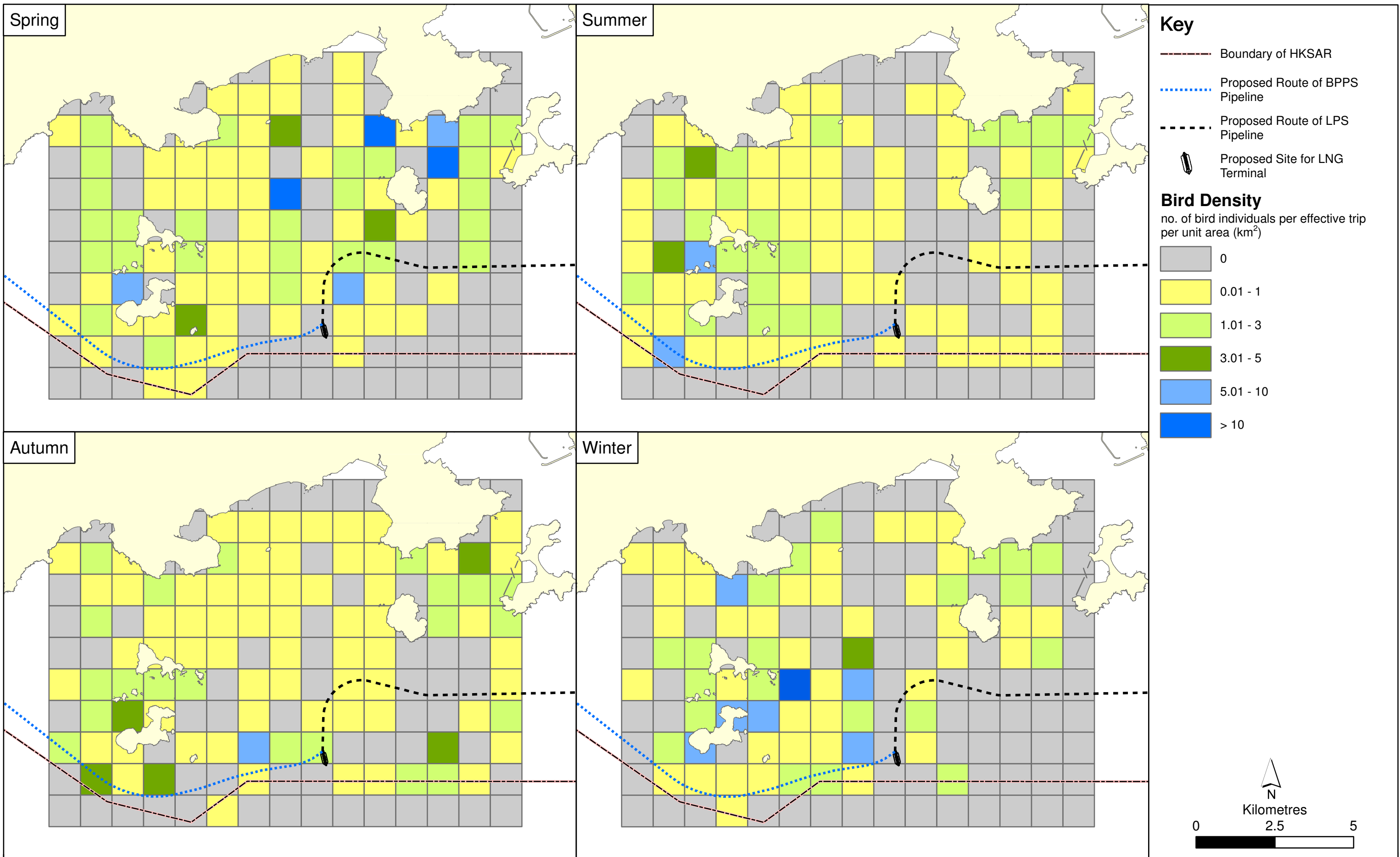


Figure 9C.32

Seasonal Bird Density in the Avifauna Assessment Area during July 2016 to June 2017  
(Total Effective Survey Trips = 24)

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Environmental  
Resources  
Management





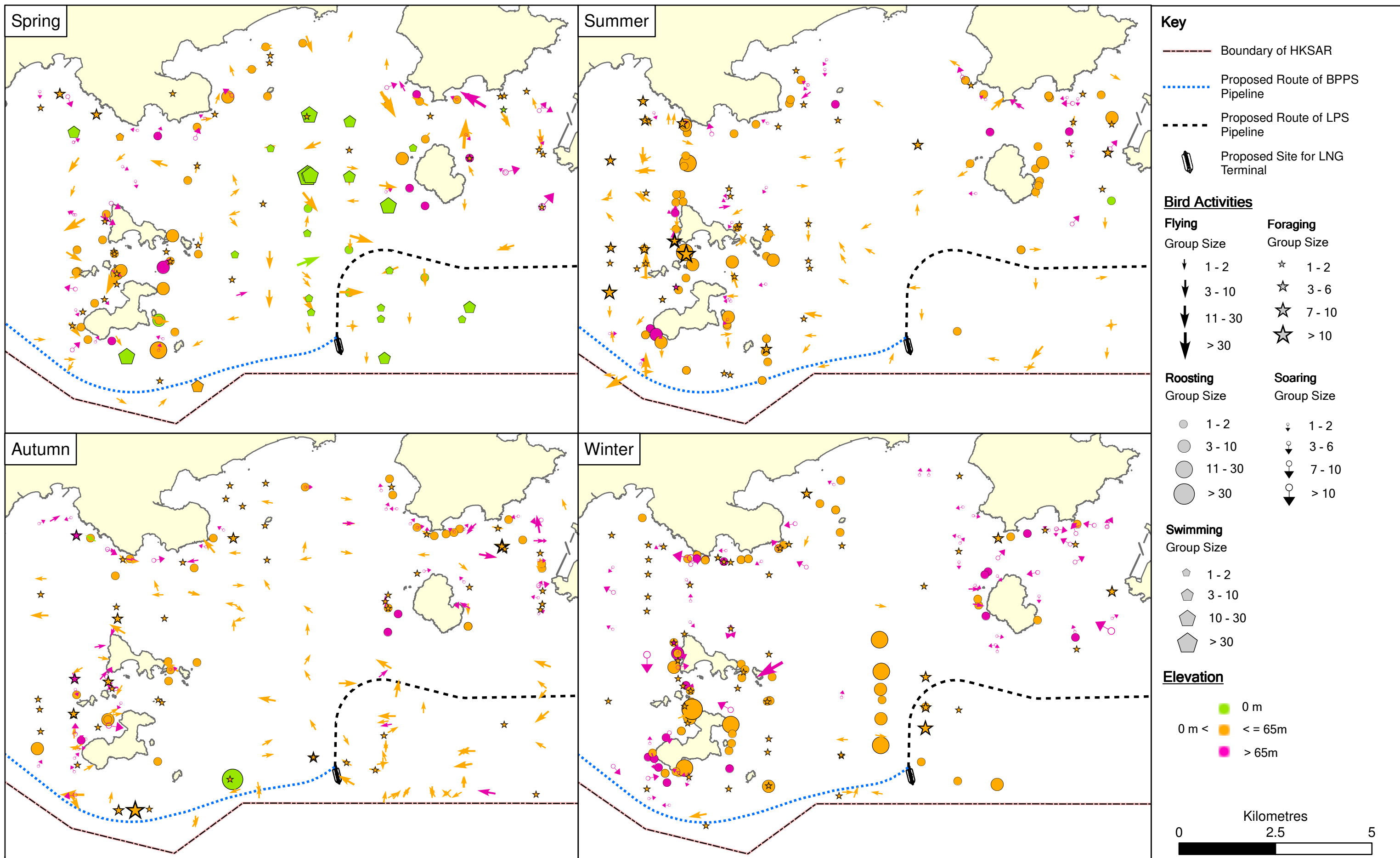


Figure 9C.33

Seasonal Variation of the Distribution of All Birds in the Avifauna Assessment Area during July 2016 to June 2017  
(Total effective survey trips = 24)

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Environmental  
Resources  
Management



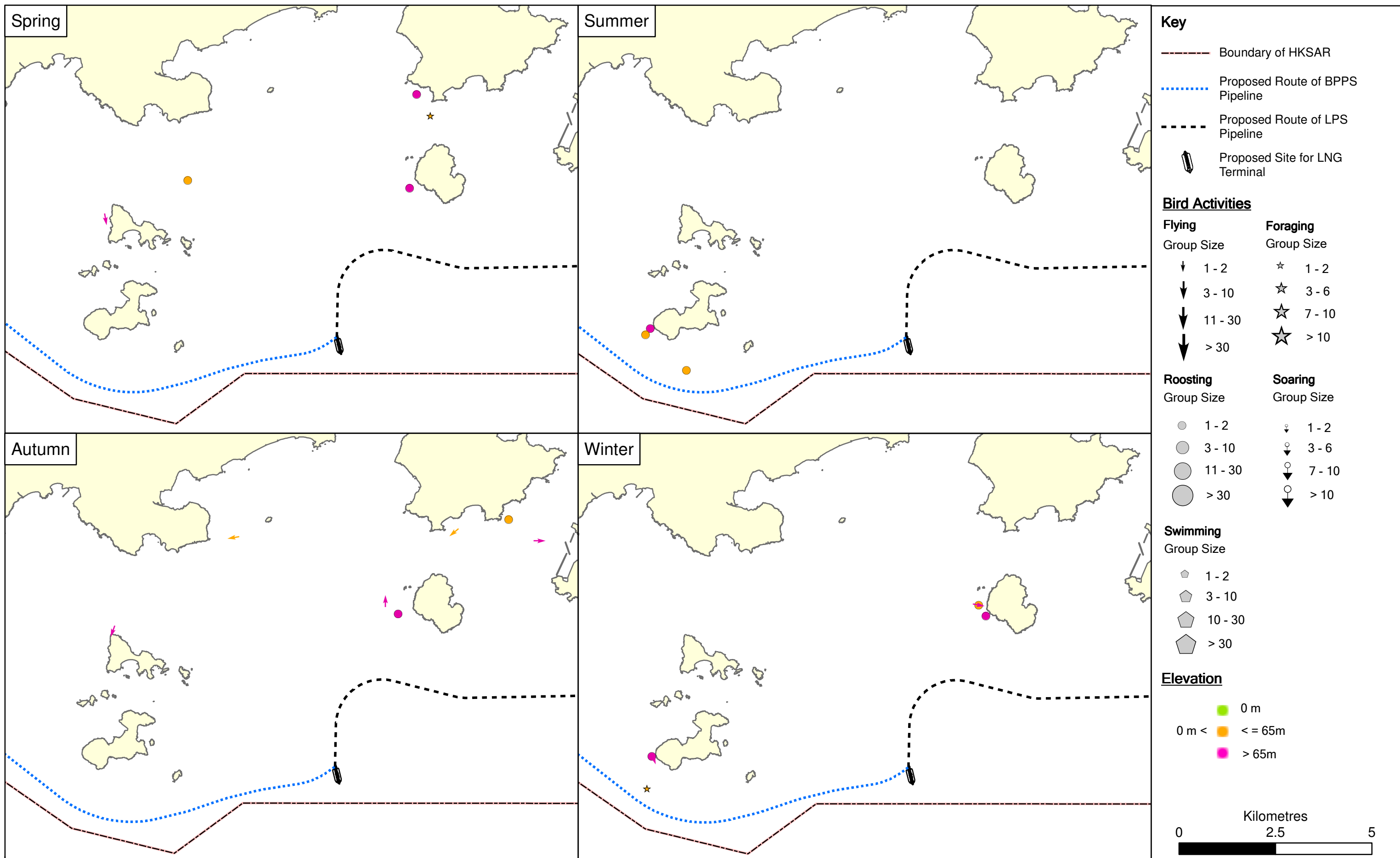


Figure 9C.34

Seasonal Variation of the Distribution of White-bellied Sea Eagle in the Avifauna Assessment Area during July 2016 to June 2017  
(Total effective survey trips = 24)

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Environmental  
Resources  
Management



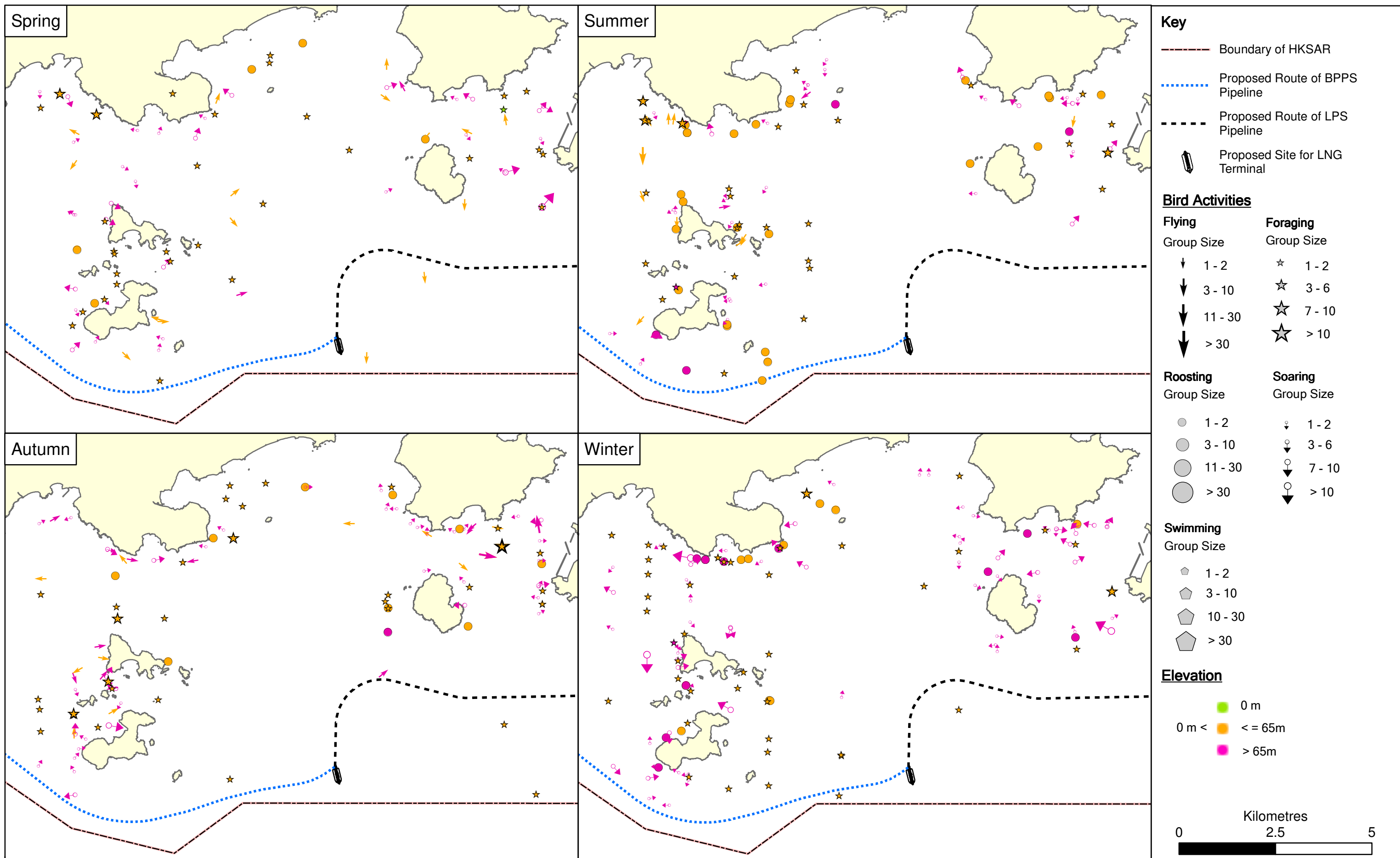


Figure 9C.35

Seasonal Variation of the Distribution of Black Kite in the Avifauna Assessment Area during July 2016 to June 2017  
(Total effective survey trips = 24)

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Date: 18/4/2018

**Environmental  
Resources  
Management**



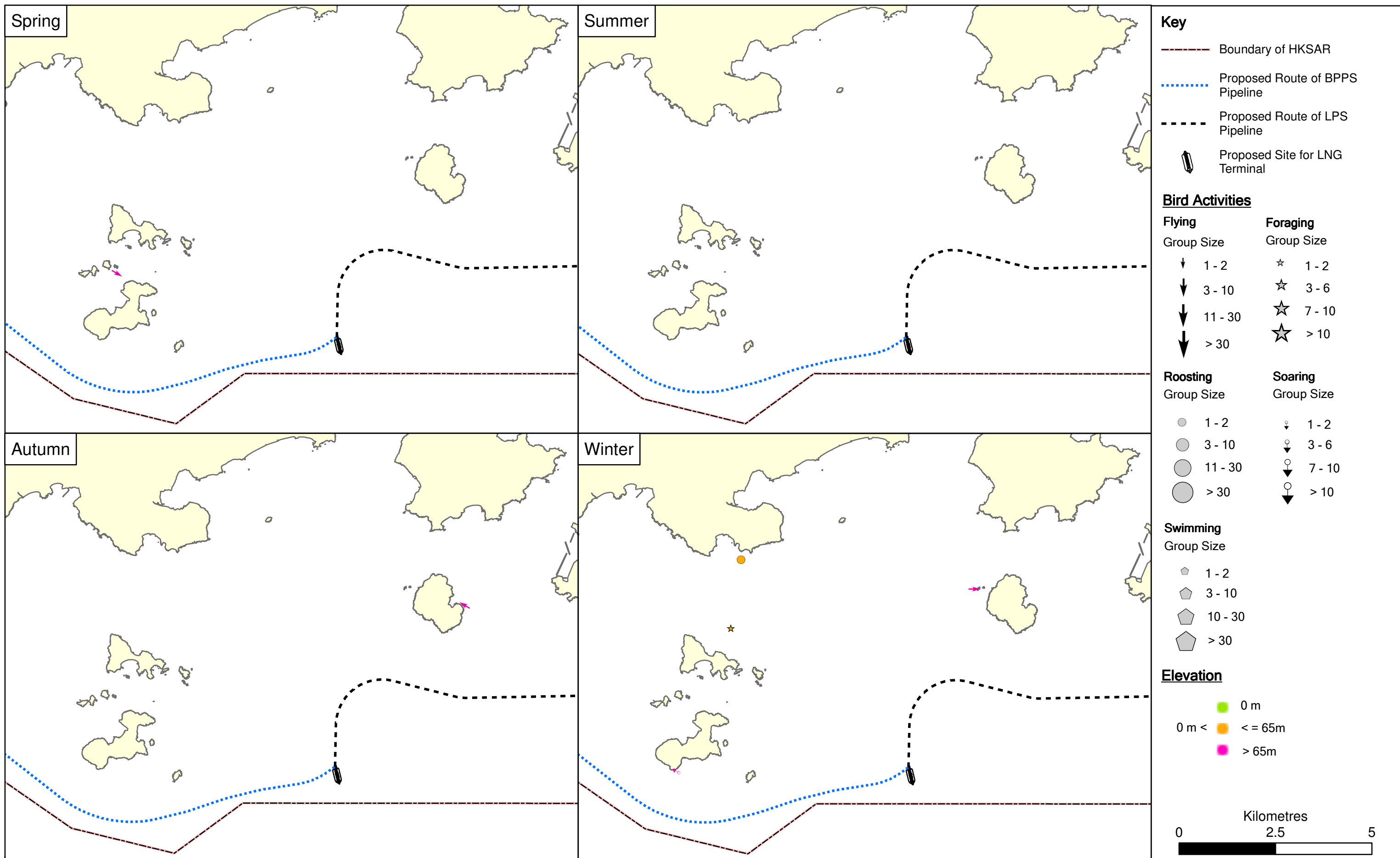


Figure 9C.36

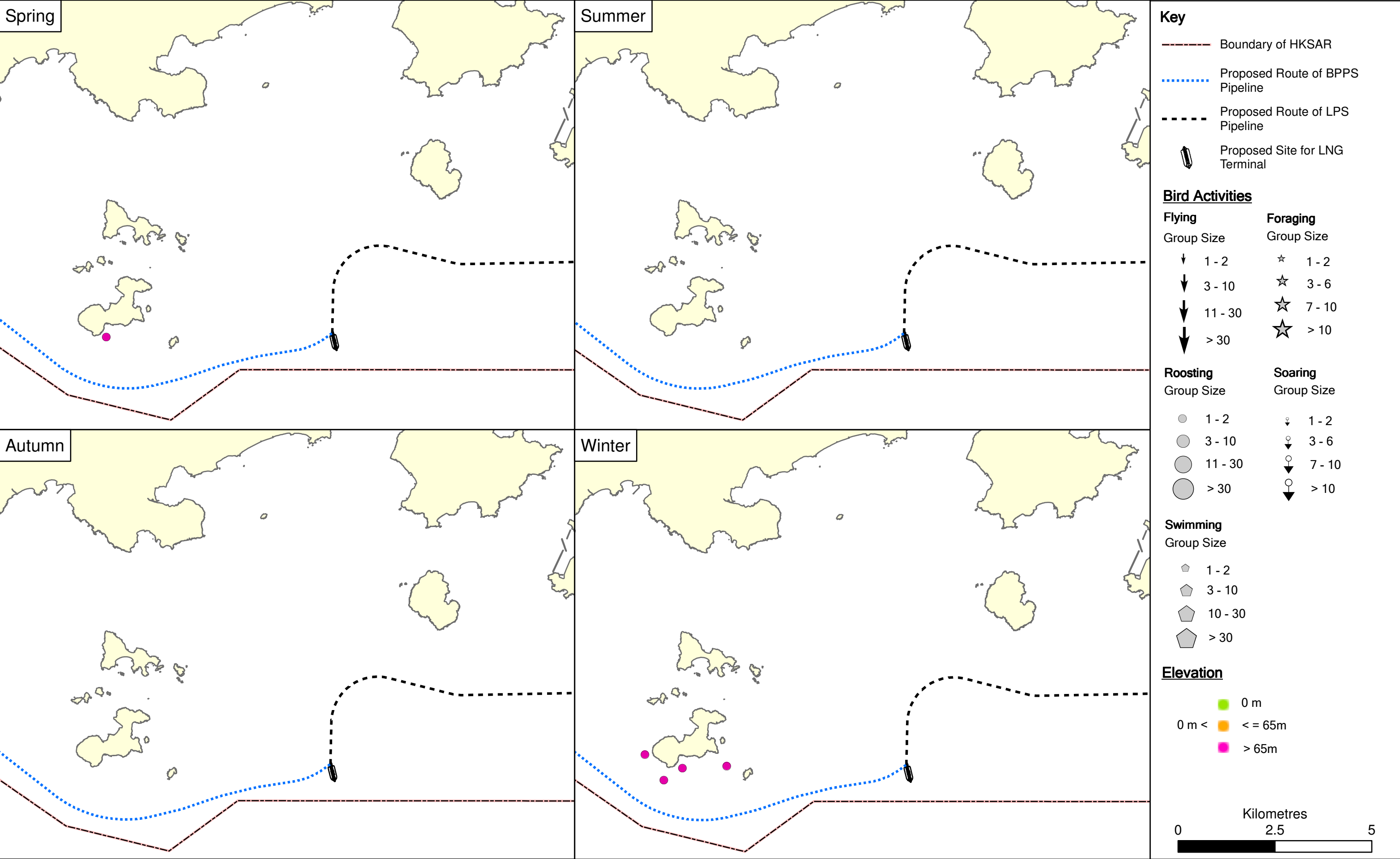
Seasonal Variation of the Distribution of Common Buzzard in the Avifauna Assessment Area during July 2016 to June 2017  
(Total effective survey trips = 24)

File: T:\GIS\CONTRACT\0359722\Mxd\Avifauna\0359722\_Avifauna\_Common\_Buzzard.mxd  
Date: 18/4/2018

**Environmental  
Resources  
Management**







Key

Boundary of HKSAR

Proposed Route of BPPS Pipeline

Proposed Route of LPS Pipeline

Proposed Site for LNG Terminal

Bird Activities

Flying

Group Size

↓ 1 - 2

↓ 3 - 10

↓ 11 - 30

↓ > 30

Foraging

Group Size

☆ 1 - 2

☆ 3 - 6

☆ 7 - 10

☆ > 10

Roosting

Group Size

● 1 - 2

● 3 - 10

● 11 - 30

● > 30

Soaring

Group Size

⬇ 1 - 2

⬇ 3 - 6

⬇ 7 - 10

⬇ > 10

Swimming

Group Size

⬠ 1 - 2

⬠ 3 - 10

⬠ 10 - 30

⬠ > 30

Elevation

0 m

0 m < ≤ 65m

> 65m

Kilometres

0 2.5 5

Figure 9C.37

Seasonal Variation of the Distribution of Peregrine Falcon in the Avifauna Assessment Area during July 2016 to June 2017  
(Total effective survey trips = 24)

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Date: 18/4/2018

Environmental Resources Management

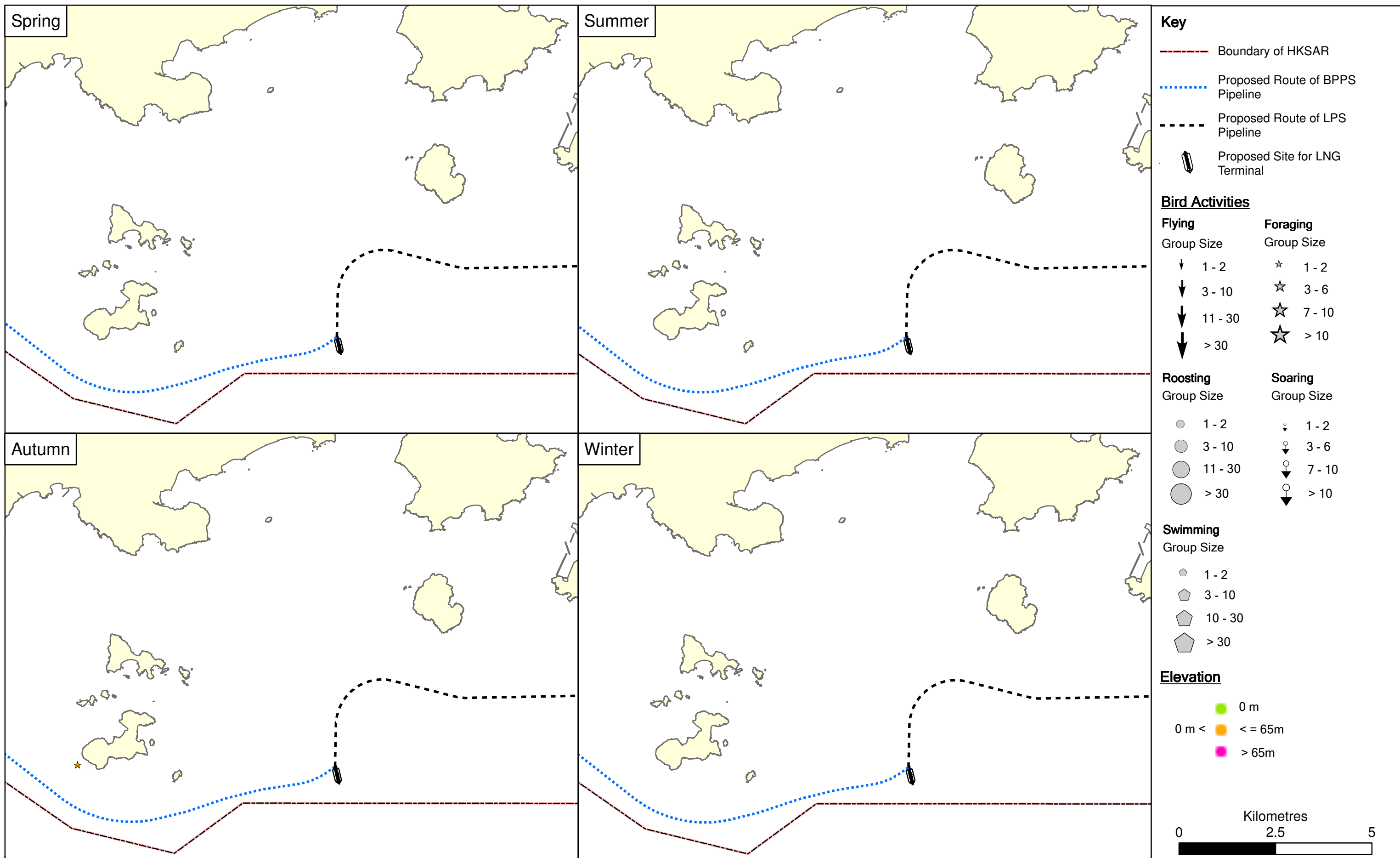


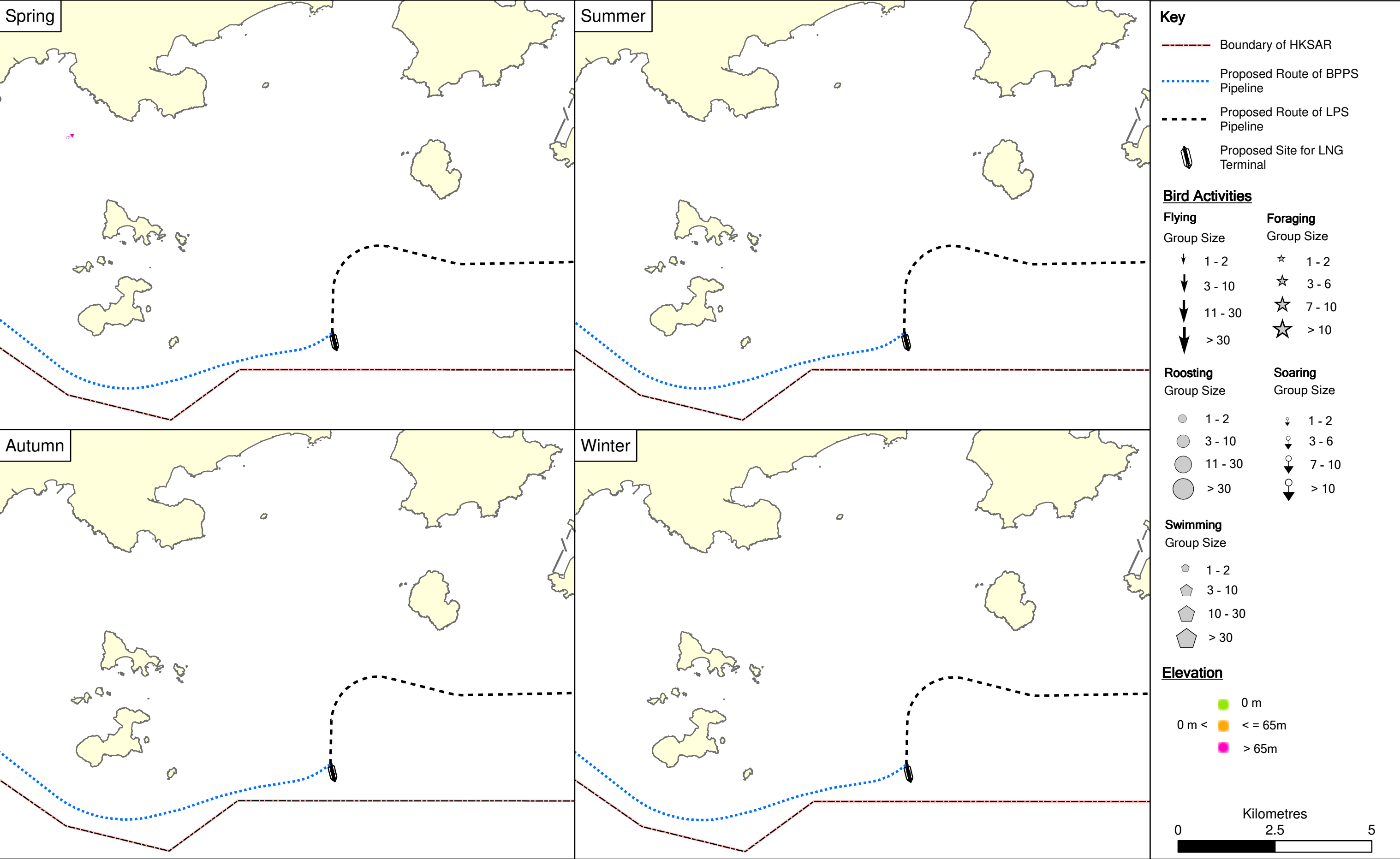
Figure 9C.38

Seasonal Variation of the Distribution of Crested Goshawk in the Avifauna Assessment Area during July 2016 to June 2017  
(Total effective survey trips = 24)

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Date: 18/4/2018

**Environmental  
Resources  
Management**





**Key**

Boundary of HKSAR

Proposed Route of BPPS Pipeline

Proposed Route of LPS Pipeline

Proposed Site for LNG Terminal

**Bird Activities**

**Flying**

Group Size

1 - 2

3 - 10

11 - 30

> 30

**Foraging**

Group Size

1 - 2

3 - 6

7 - 10

> 10

**Roosting**

Group Size

1 - 2

3 - 10

11 - 30

> 30

**Soaring**

Group Size

1 - 2

3 - 6

7 - 10

> 10

**Swimming**

Group Size

1 - 2

3 - 10

10 - 30

> 30

**Elevation**

0 m

0 m < <= 65m

> 65m

Kilometres

0

2.5

5

Figure 9C.39

Seasonal Variation of the Distribution of Crested Serpent Eagle in the Avifauna Assessment Area during July 2016 to June 2017  
(Total effective survey trips = 24)

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Date: 18/4/2018

Environmental  
Resources  
Management

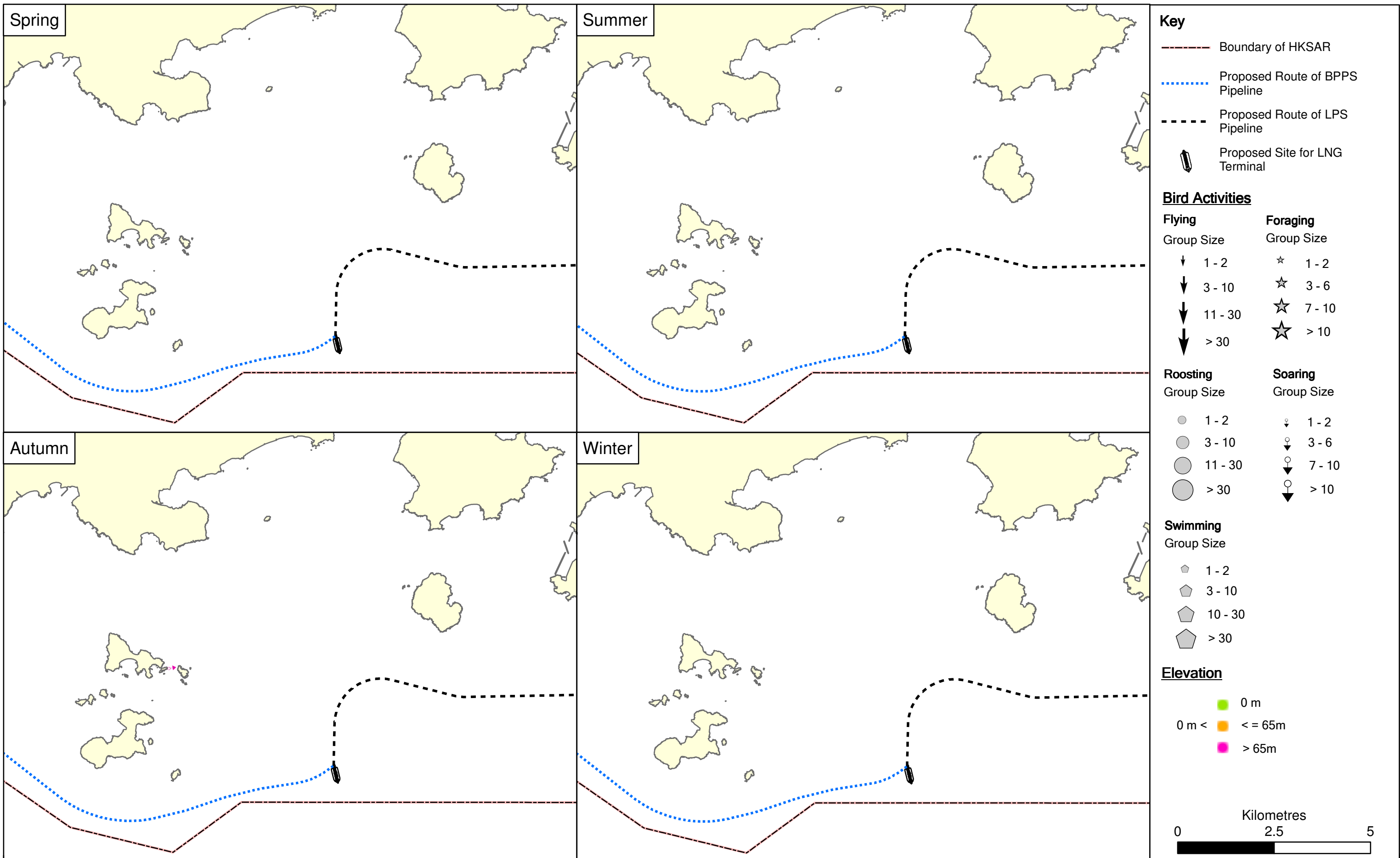


Figure 9C.40

Seasonal Variation of the Distribution of Common Kestrel in the Avifauna Assessment Area during July 2016 to June 2017  
(Total effective survey trips = 24)

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**Environmental  
Resources  
Management**





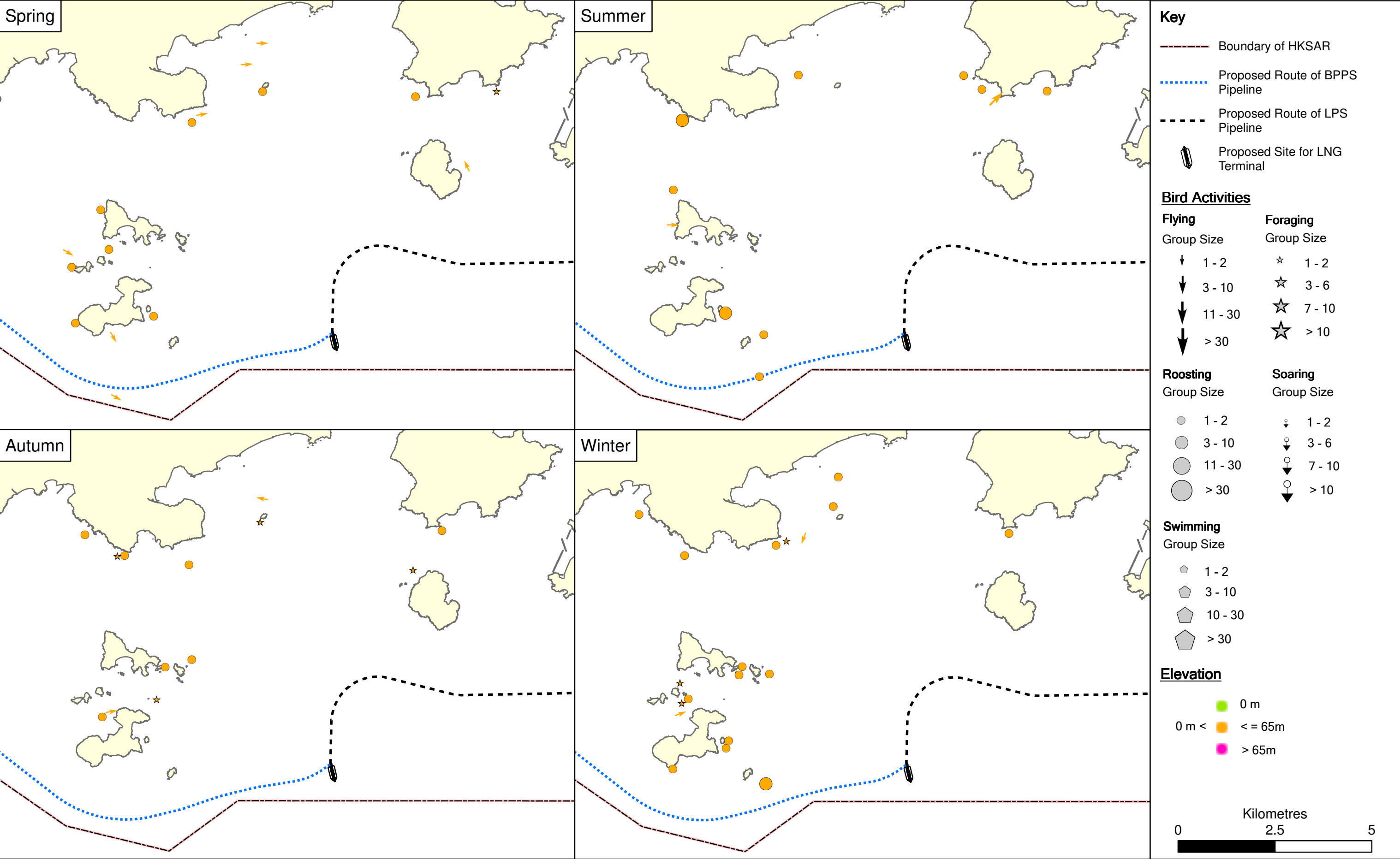


Figure 9C.41  
Seasonal Variation of the Distribution of Pacific Reef Egret in the Avifauna Assessment Area during July 2016 to June 2017  
(Total effective survey trips = 24)

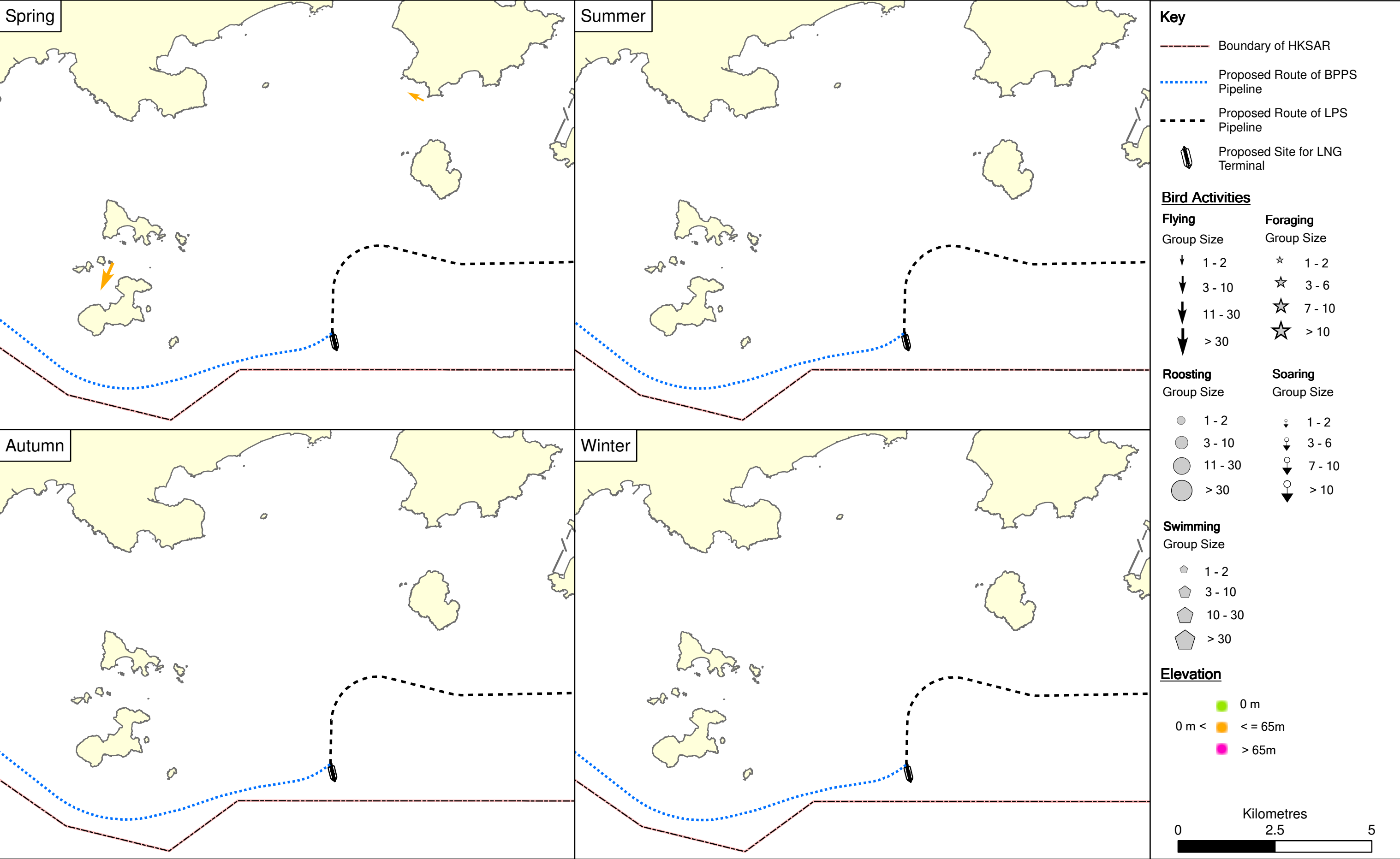



Figure 9C.42

Seasonal Variation of the Distribution of Great Egret in the Avifauna Assessment Area during July 2016 to June 2017  
(Total effective survey trips = 24)

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Date: 23/4/2018

Environmental  
Resources  
Management



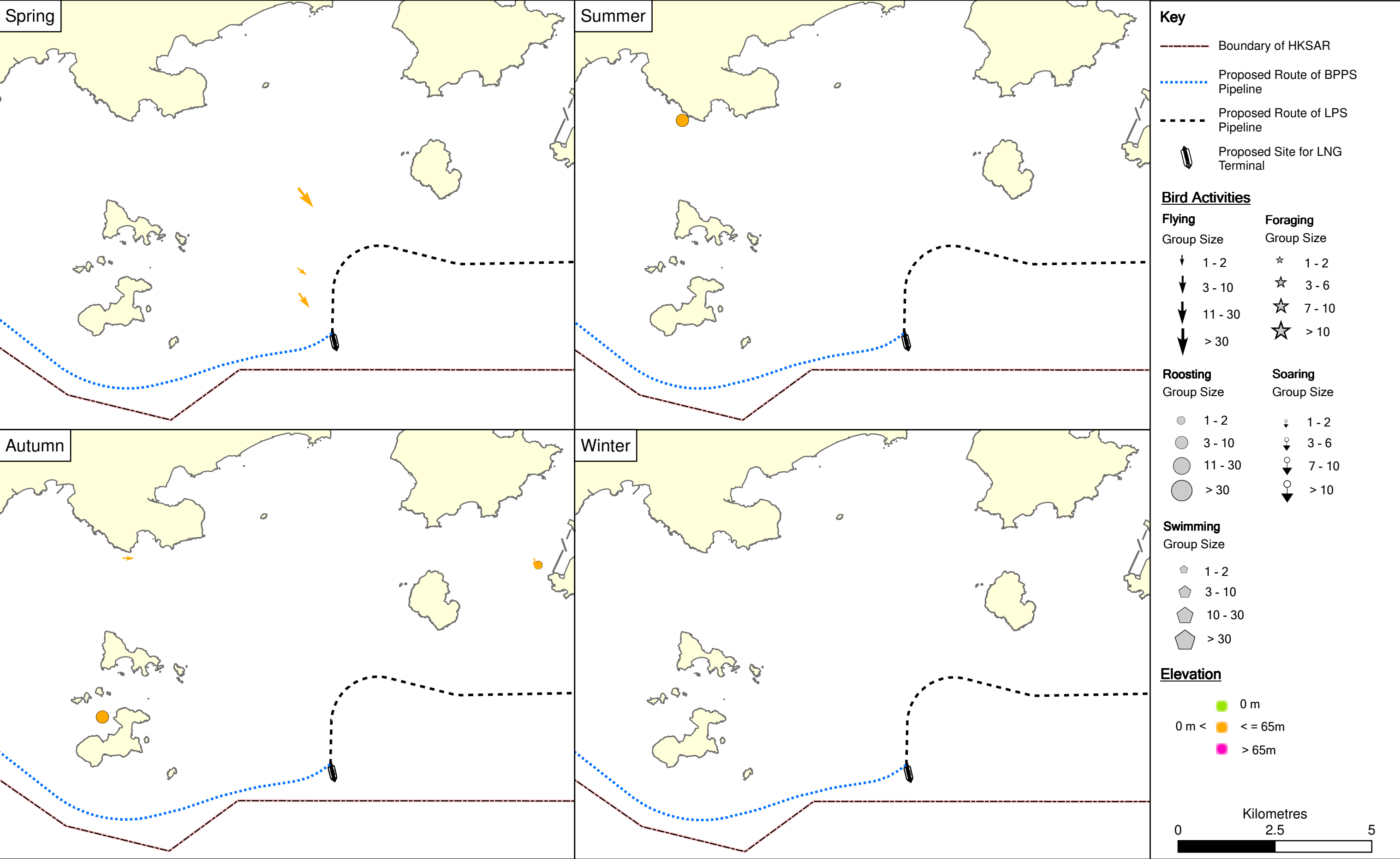


Figure 9C.43

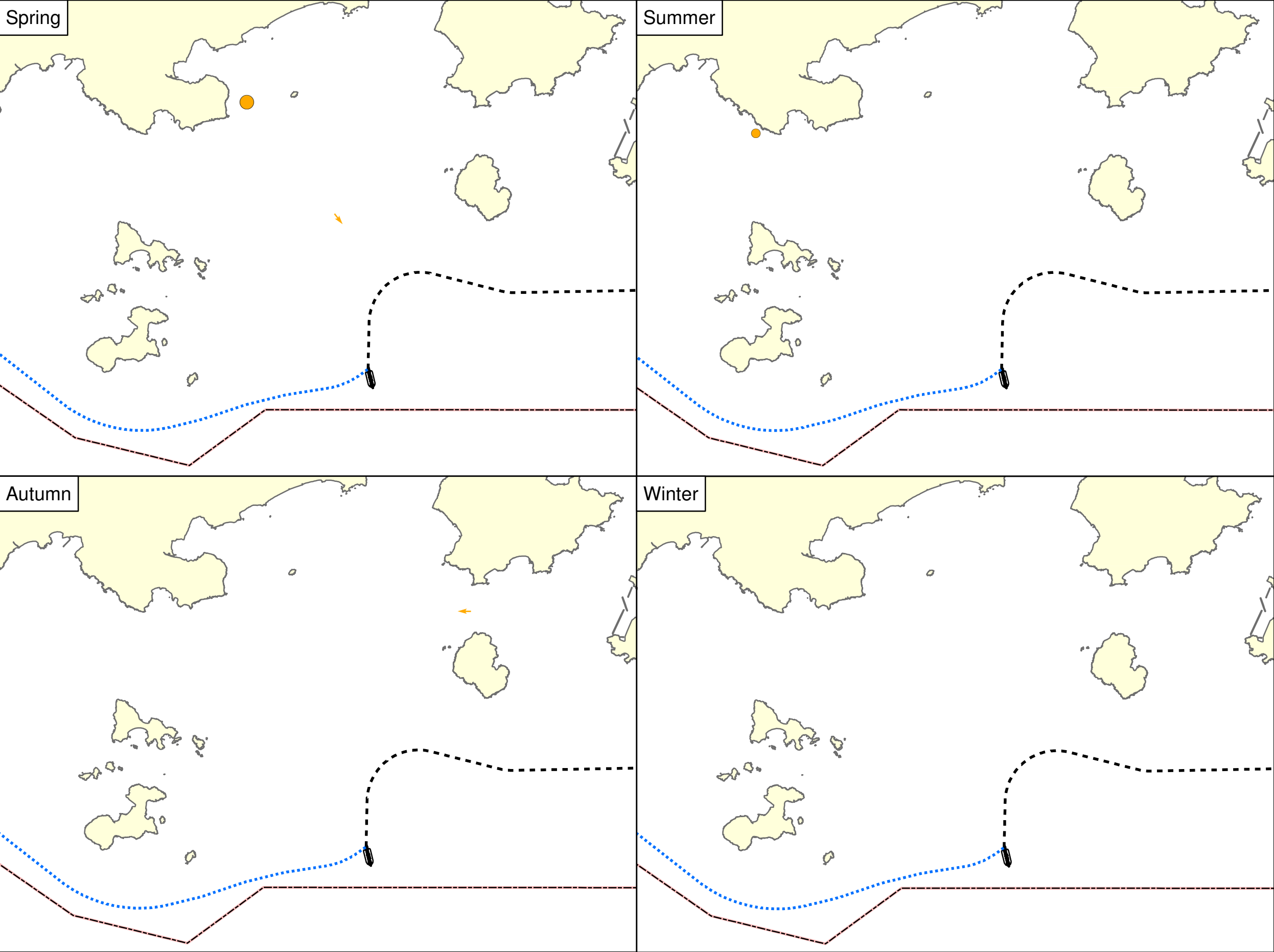
Seasonal Variation of the Distribution of Little Egret in the Avifauna Assessment Area during July 2016 to June 2017  
(Total effective survey trips = 24)

Environmental Resources Management

ERM

File: T:\GIS\CONTRACT\0359722\Mxd\Avifauna\0359722\_Avifauna\_Little\_Egret.mxd

Date: 23/4/2018



**Key**

- Boundary of HKSAR
- Proposed Route of BPPS Pipeline
- Proposed Route of LPS Pipeline
- Proposed Site for LNG Terminal

**Bird Activities**

Flying Group Size	Foraging Group Size
↓ 1 - 2	☆ 1 - 2
↓ 3 - 10	☆ 3 - 6
↓ 11 - 30	☆ 7 - 10
↓ > 30	☆ > 10

Roosting Group Size	Soaring Group Size
● 1 - 2	↓ 1 - 2
● 3 - 10	↓ 3 - 6
● 11 - 30	↓ 7 - 10
● > 30	↓ > 10

**Swimming Group Size**

- 1 - 2
- 3 - 10
- 10 - 30
- > 30

**Elevation**

- 0 m
- 0 m < ≤ 65m
- > 65m

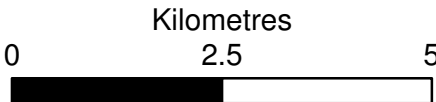


Figure 9C.44  
Seasonal Variation of the Distribution of Cattle Egret in the Avifauna Assessment Area during July 2016 to June 2017  
(Total effective survey trips = 24)



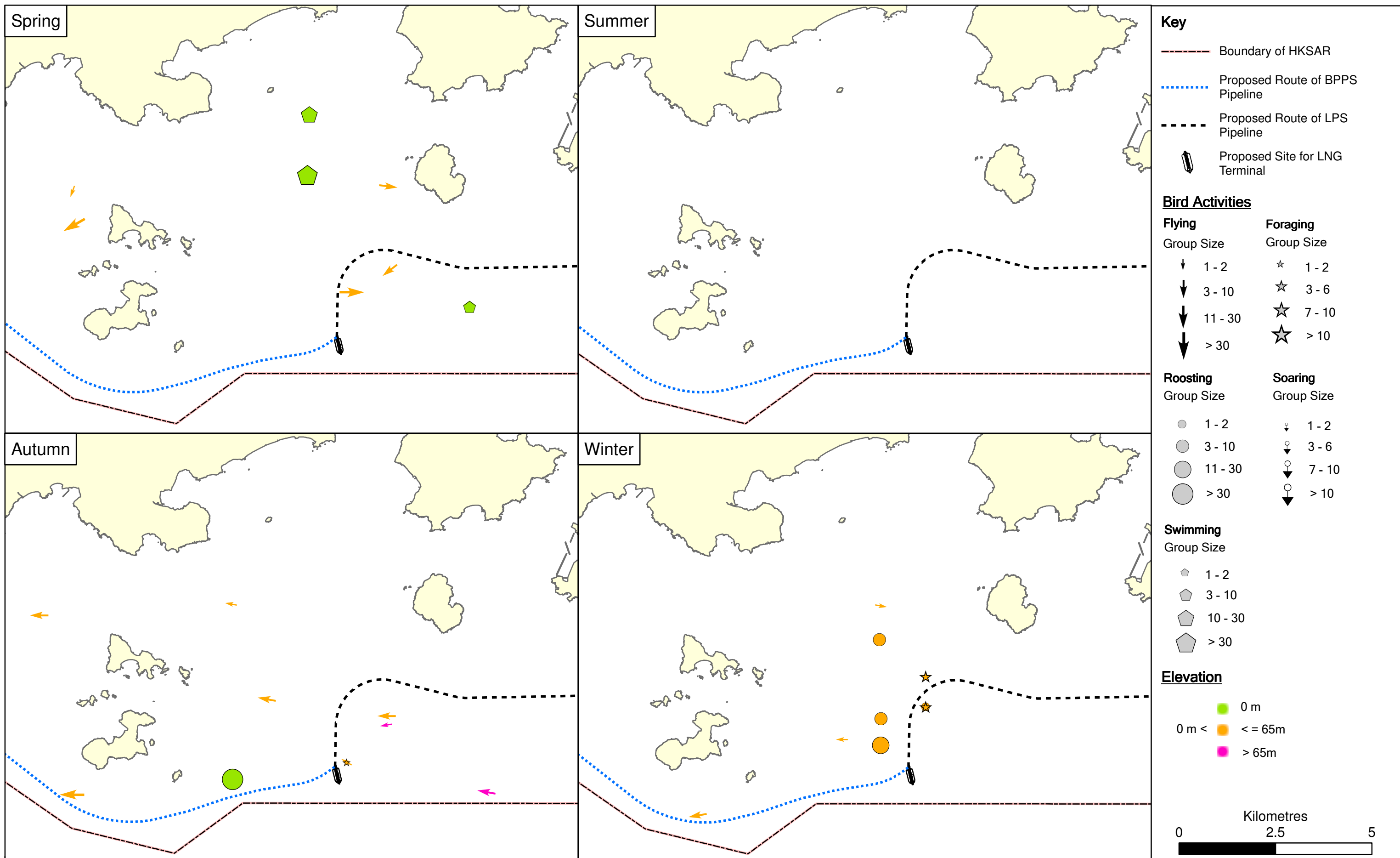


Figure 9C.45

Seasonal Variation of the Distribution of Black-headed Gull in the Avifauna Assessment Area during July 2016 to June 2017  
(Total effective survey trips = 24)

File: T:\GIS\CONTRACT\0359722\Mxd\Avifauna\0359722\_Avifauna\_Black\_headed\_Gull.mxd  
Date: 23/4/2018

**Environmental  
Resources  
Management**



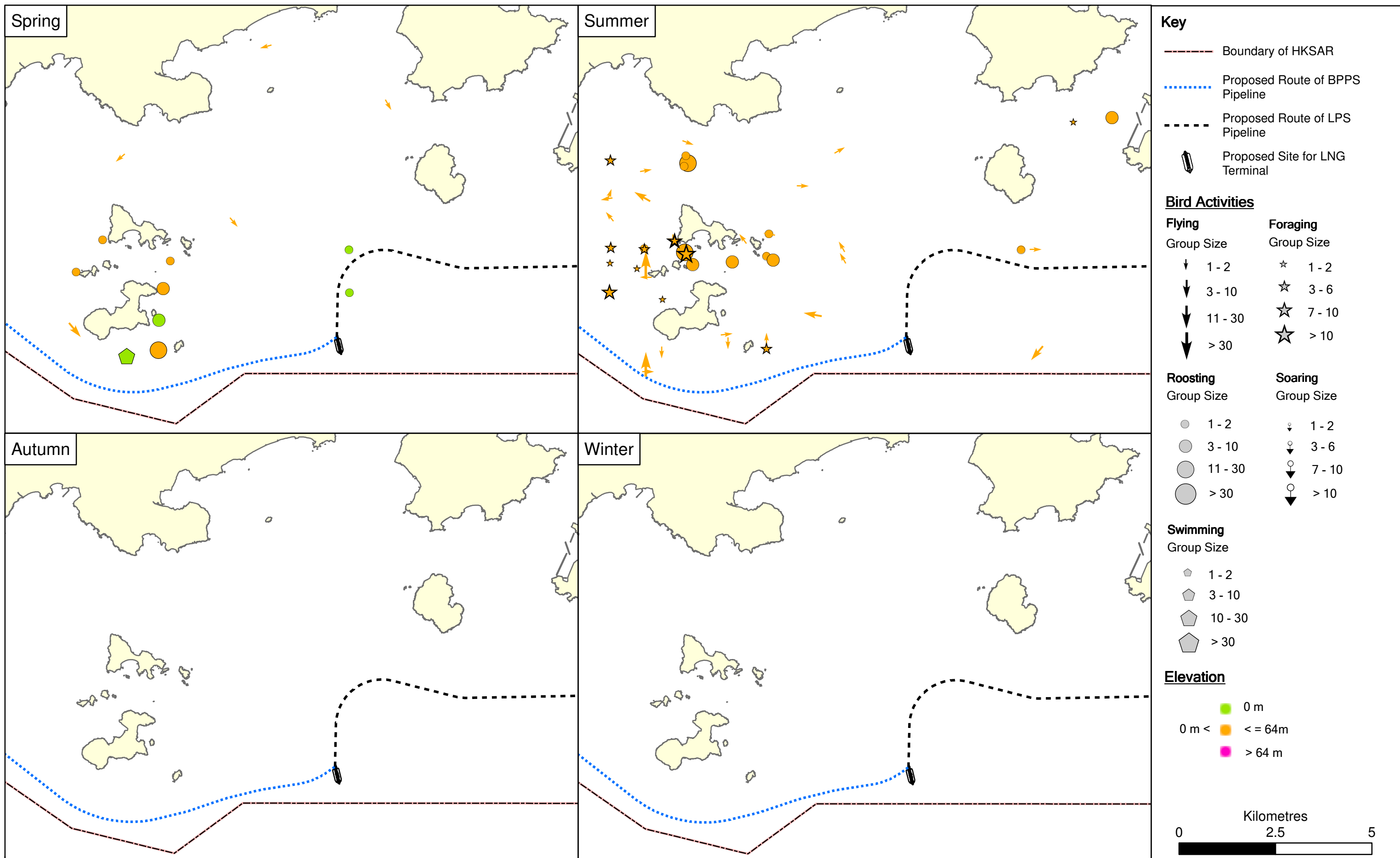


Figure 9C.46 Seasonal Variation of the Distribution of Black-naped Tern in Waters around Lamma Island during July 2016 to June 2017  
(Total effective survey trips = 24)

File: T:\GIS\CONTRACT\0359722\Mxd\Avifauna\0359722\_Avifauna\_Black\_naped\_Tern.mxd  
Date: 23/4/2018

**Environmental  
Resources  
Management**



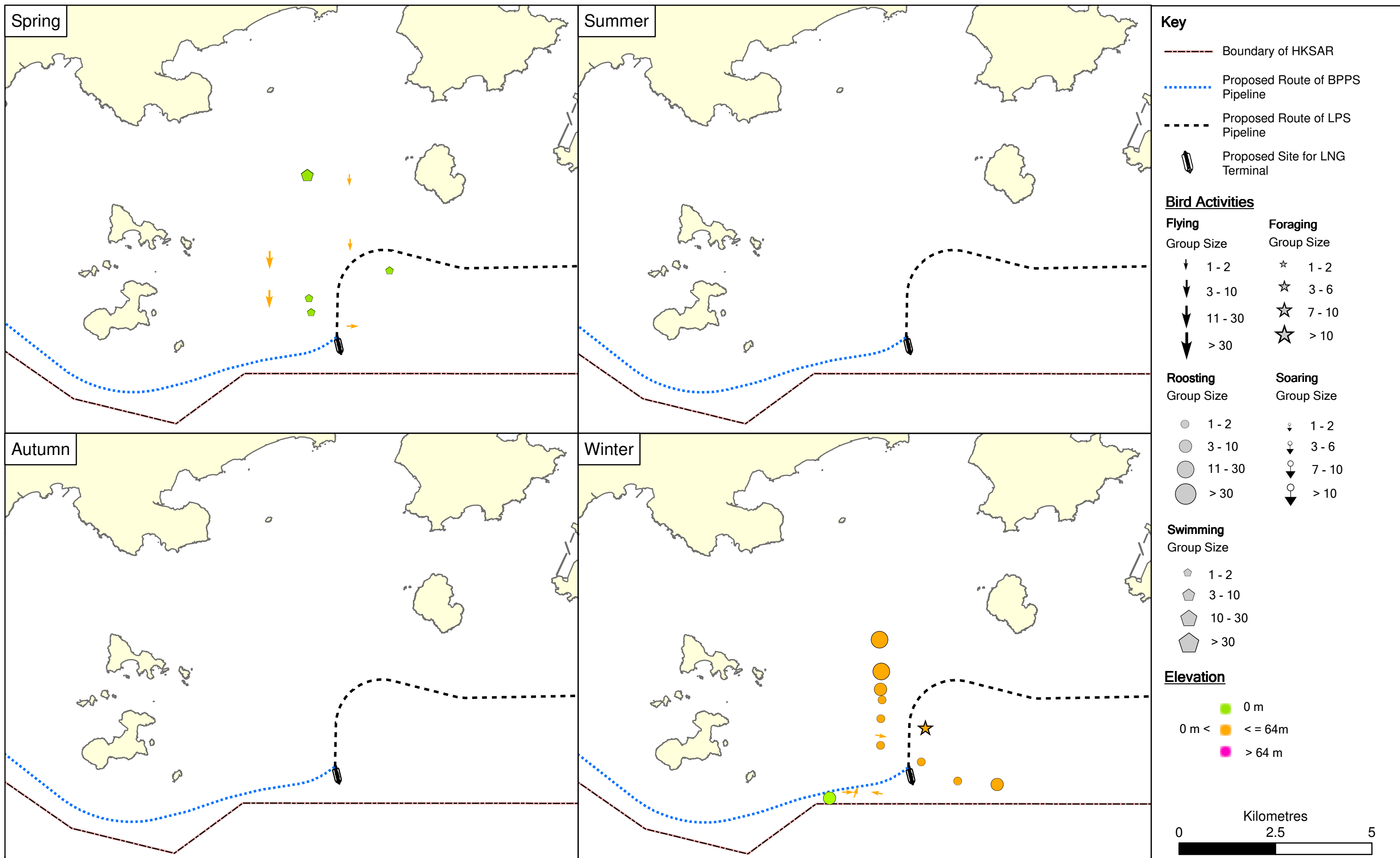


Figure 9C.47 Seasonal Variation of the Distribution of Black-tailed Gull in Waters around Lamma Island during July 2016 to June 2017  
(Total effective survey trips = 24)

File: T:\GIS\CONTRACT\0359722\Mxd\Avifauna\0359722\_Avifauna\_Black\_tailed\_Gull.mxd  
Date: 23/4/2018

Environmental  
Resources  
Management



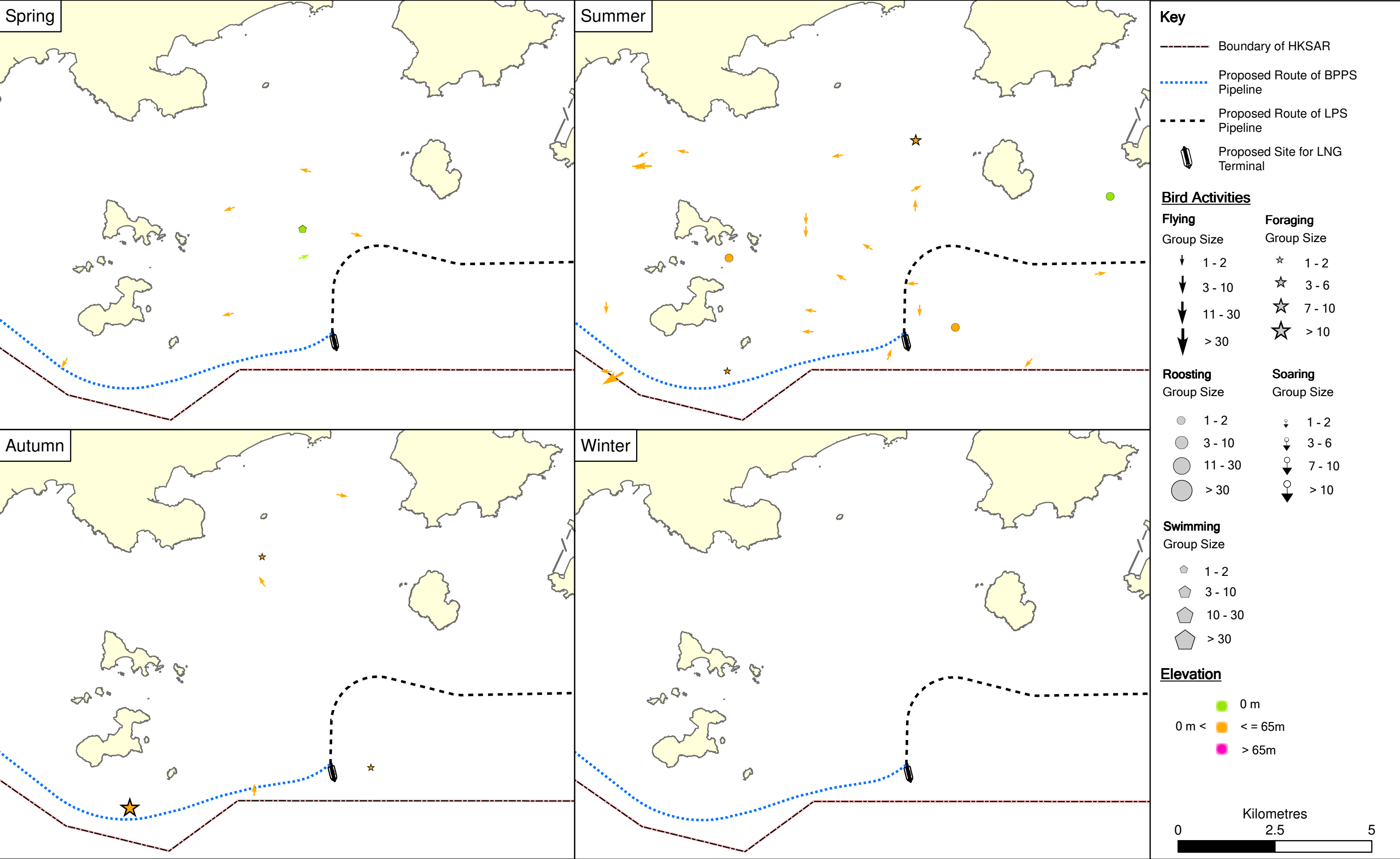


Figure 9C.48  
Seasonal Variation of the Distribution of Bridled Tern in the Avifauna Assessment Area during July 2016 to June 2017  
(Total effective survey trips = 24)

File: T:\GIS\CONTRACT\0359722\Mxd\Avifauna\0359722\_Avifauna\_Bridled\_Tern.mxd  
Date: 23/4/2018

Environmental Resources Management



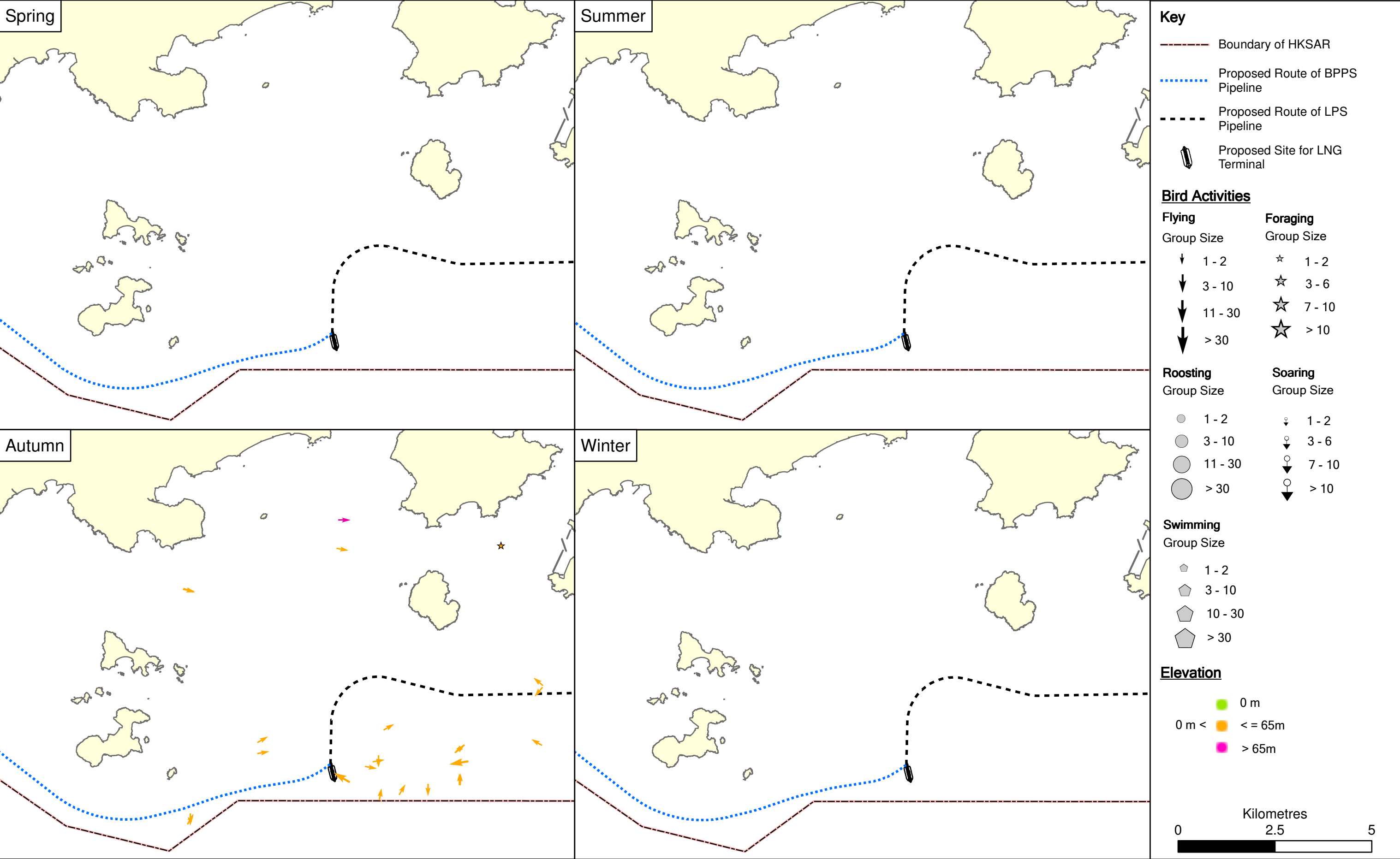
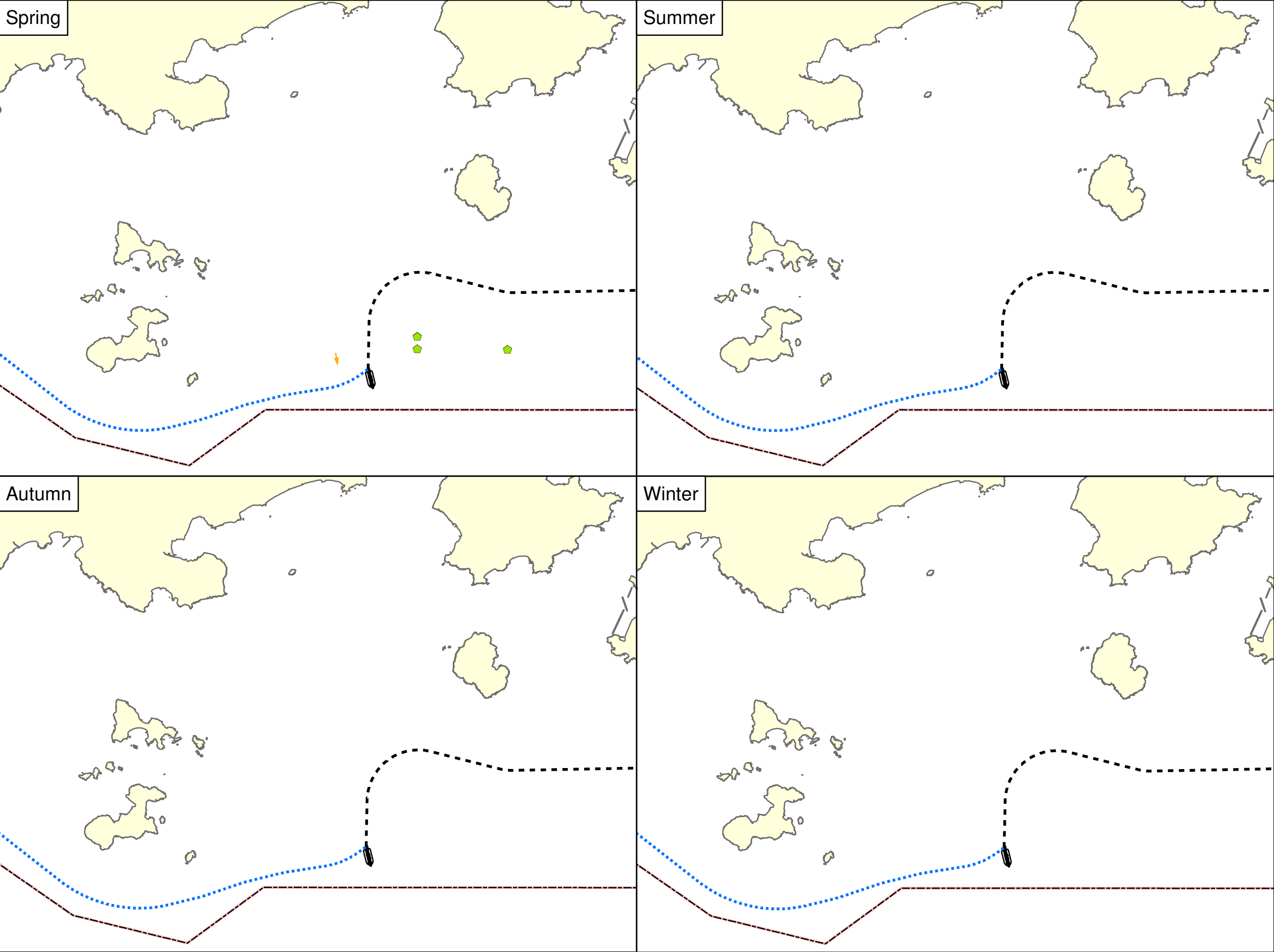


Figure 9C.49 Seasonal Variation of the Distribution of Aleutian Terns in the Avifauna Assessment Area during July 2016 to June 2017 (Total effective survey trips = 24)

File: T:\GIS\CONTRACT\0359722\Mxd\Avifauna\0359722\_Aleutian\_Terns.mxd  
Date: 23/4/2018

Environmental Resources Management



Key

Boundary of HKSAR

Proposed Route of BPPS Pipeline

Bird Activities

Flying

Group Size

1 - 2

3 - 10

11 - 30

> 30

Foraging

Group Size

1 - 2

3 - 6

7 - 10

> 10

Roosting

Group Size

1 - 2

3 - 10

11 - 30

> 30

Soaring

Group Size

1 - 2

3 - 6

7 - 10

> 10

Swimming

Group Size

1 - 2

3 - 10

10 - 30

> 30

Elevation

0 m

0 m < <= 65m

> 65m

Kilometres

0

2.5

5

Figure 9C.50

Seasonal Variation of the Distribution of Little Tern in the Avifauna Assessment Area during July 2016 to June 2017  
(Total effective survey trips = 24)

File: T:\GIS\CONTRACT\0359722\Mxd\Avifauna\0359722\_Avifauna\_Little\_Tern.mxd  
Date: 23/4/2018

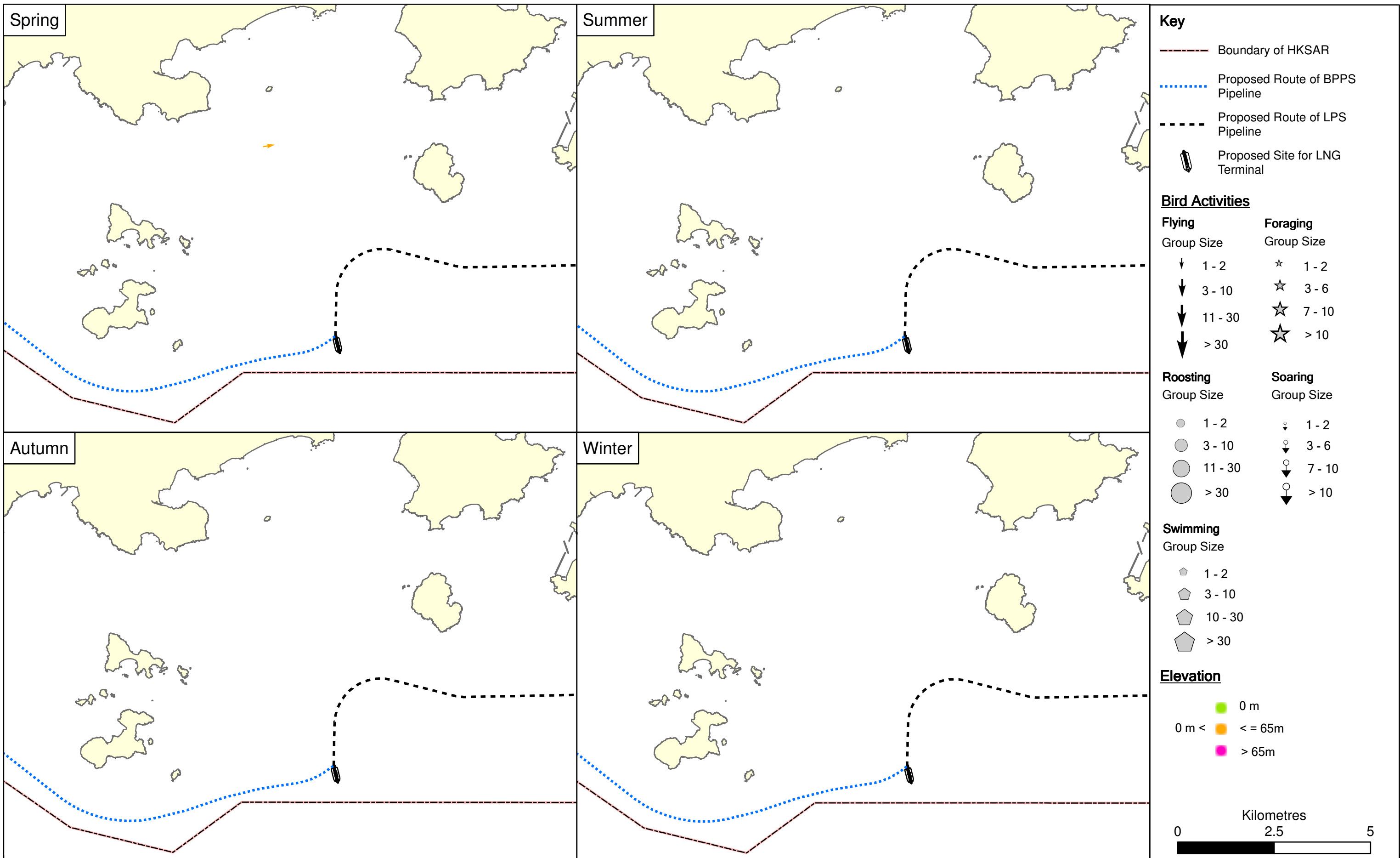


Figure 9C.51

Seasonal Variation of the Distribution of Yellow-legged Gull in the Avifauna Assessment Area during July 2016 to June 2017  
(Total effective survey trips = 24)

File: T:\GIS\CONTRACT\0359722\Mxd\Avifauna\0359722\_Avifauna\_Yellow\_legged\_Gull.mxd  
Date: 23/4/2018

**Environmental  
Resources  
Management**



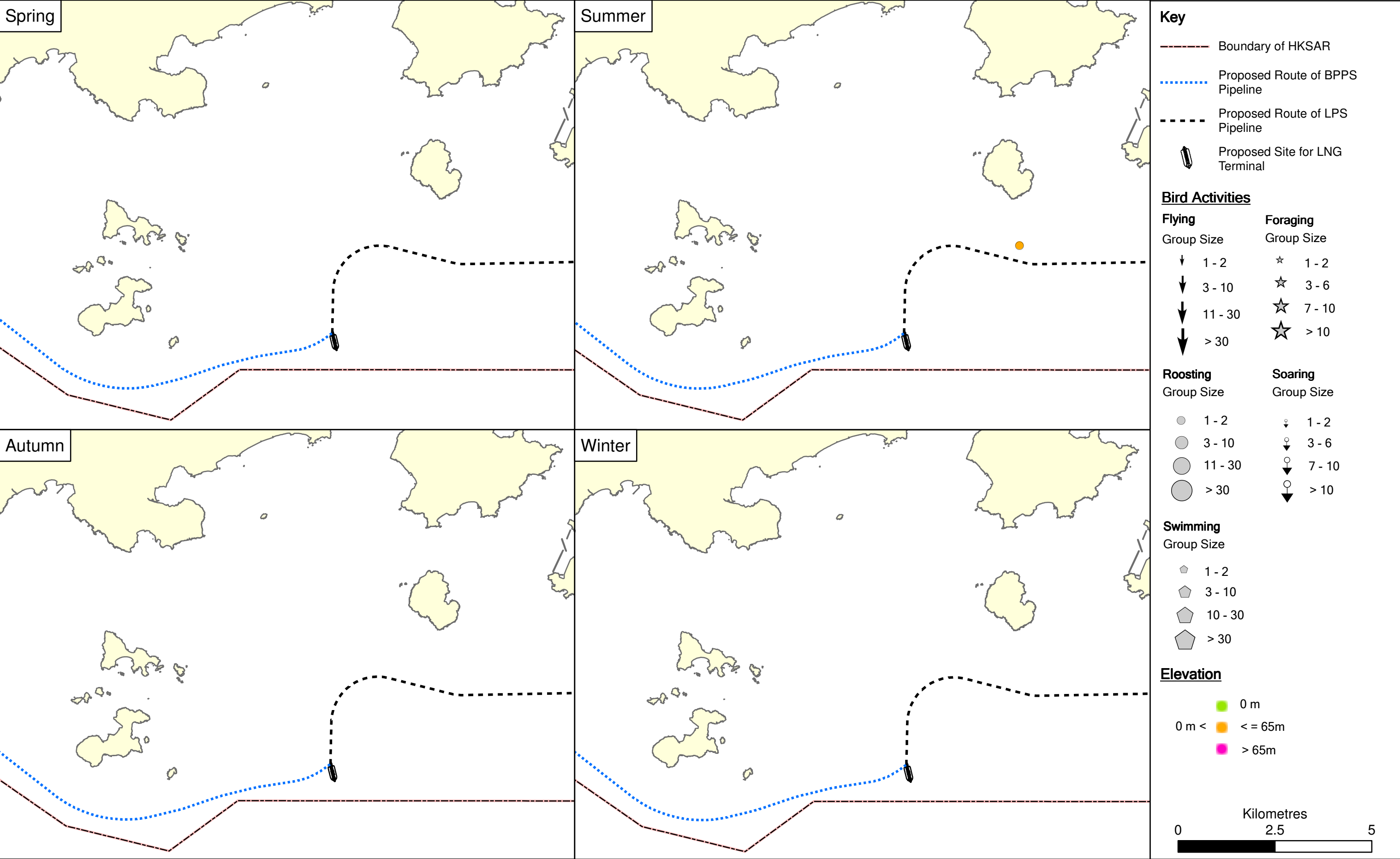
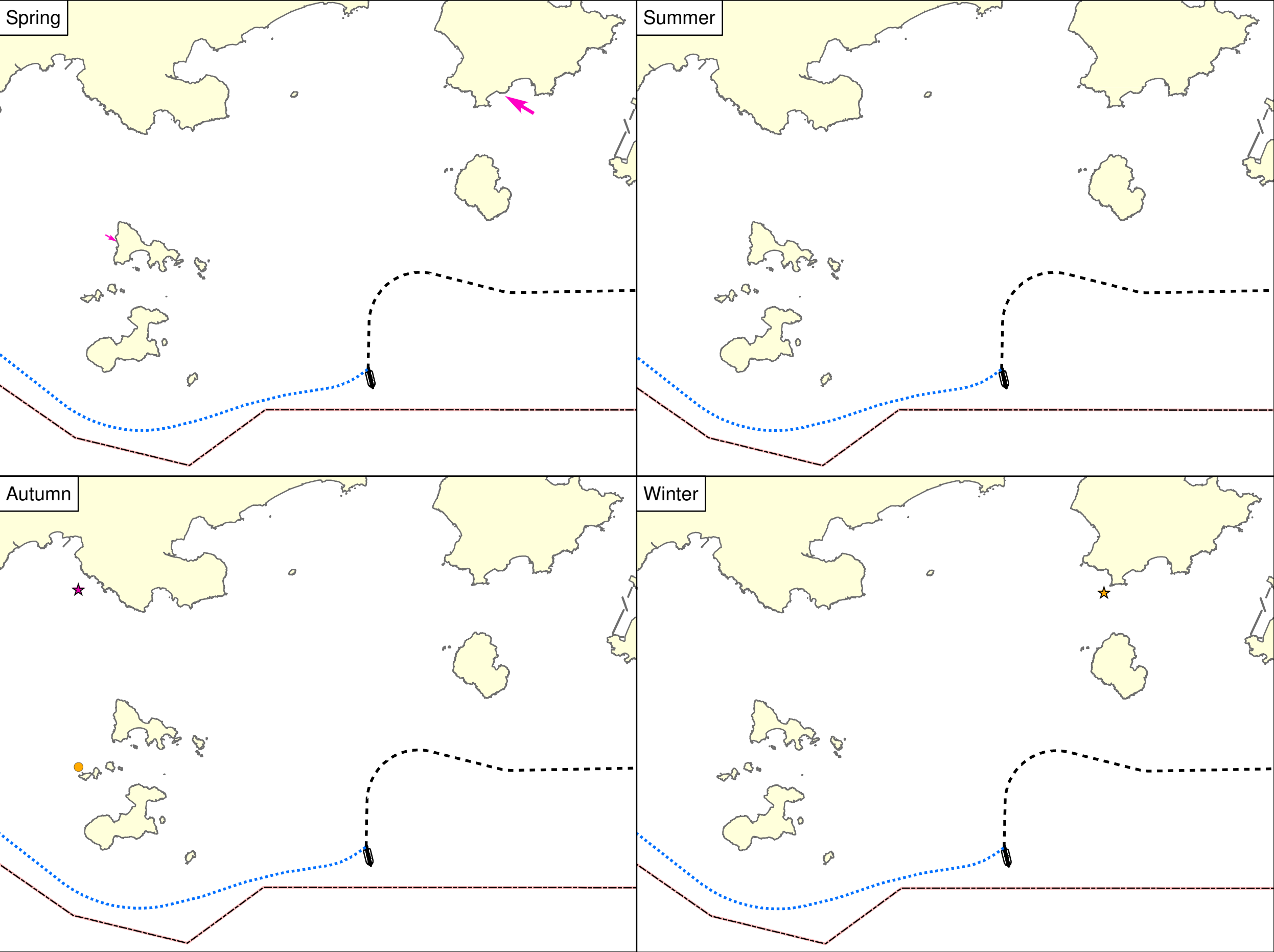


Figure 9C.52  
Seasonal Variation of the Distribution of Roseate Tern in the Avifauna Assessment Area during July 2016 to June 2017  
(Total effective survey trips = 24)

File: T:\GIS\CONTRACT\0359722\Mxd\Avifauna\0359722\_Avifauna\_Roseate\_Tern.mxd  
Date: 23/4/2018

Environmental Resources Management





**Key**

- Boundary of HKSAR
- Proposed Route of BPPS Pipeline
- Proposed Route of LPS Pipeline
- Proposed Site for LNG Terminal

**Bird Activities**

Flying Group Size	Foraging Group Size
↓ 1 - 2	☆ 1 - 2
↓ 3 - 10	☆ 3 - 6
↓ 11 - 30	☆ 7 - 10
↓ > 30	☆ > 10

Roosting Group Size	Soaring Group Size
● 1 - 2	⬇ 1 - 2
● 3 - 10	⬇ 3 - 6
● 11 - 30	⬇ 7 - 10
● > 30	⬇ > 10

**Swimming Group Size**

- 1 - 2
- 3 - 10
- 10 - 30
- > 30

**Elevation**

- 0 m
- 0 m <= 65m
- > 65m

Kilometres

0 2.5 5

Figure 9C.53  
Seasonal Variation of the Distribution of House Swift in the Avifauna Assessment Area during July 2016 to June 2017  
(Total effective survey trips = 24)

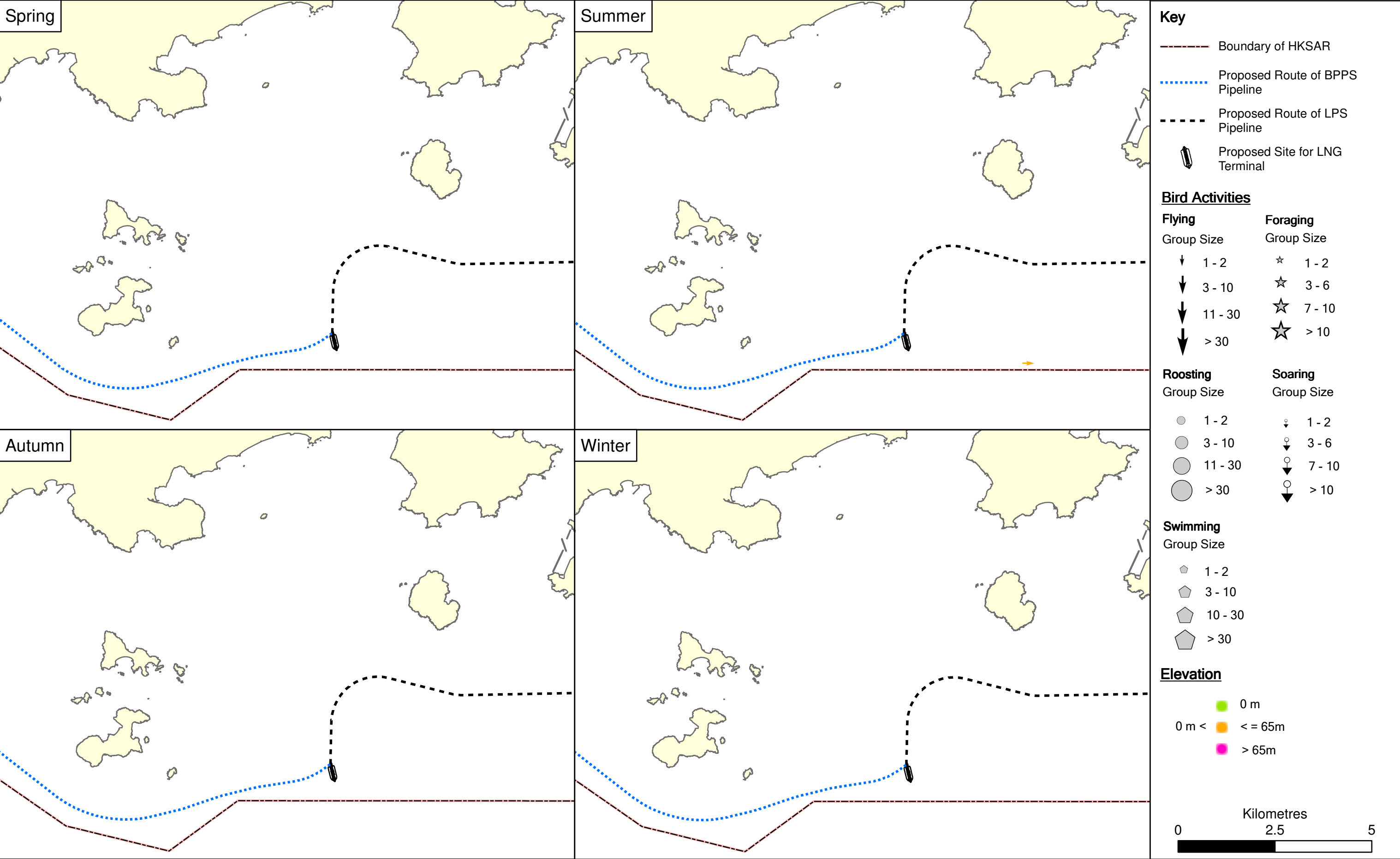
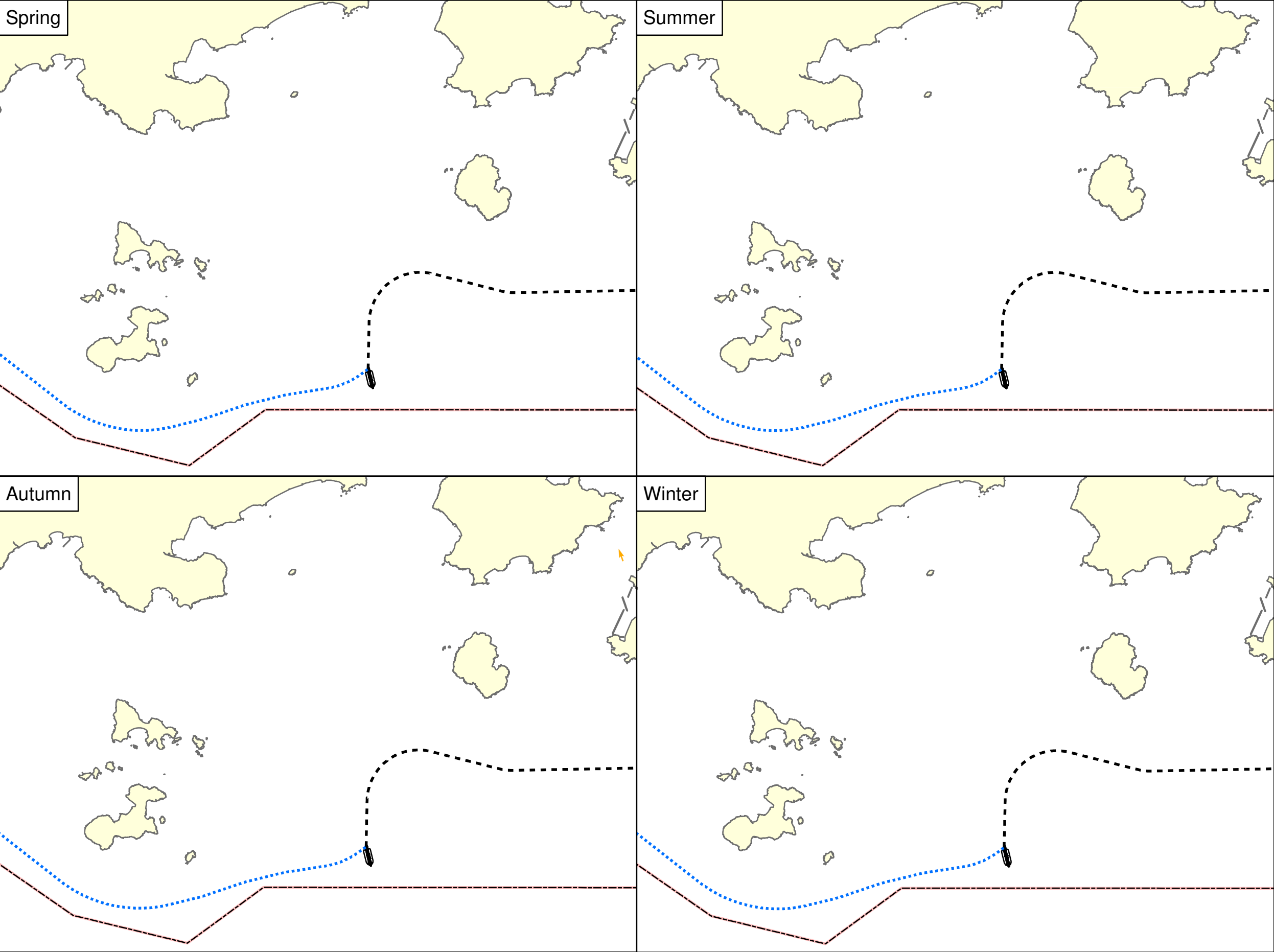


Figure 9C.54  
Seasonal Variation of the Distribution of Grey-tailed Tattler in the Avifauna Assessment Area during July 2016 to June 2017  
(Total effective survey trips = 24)

File: T:\GIS\CONTRACT\0359722\Mxd\Avifauna\0359722\_Grey\_tailed\_Tattler.mxd  
Date: 23/4/2018

Environmental Resources Management



**Key**

- Boundary of HKSAR
- Proposed Route of BPPS Pipeline
- Proposed Route of LPS Pipeline
- Proposed Site for LNG Terminal

**Bird Activities**

Flying Group Size	Foraging Group Size
↓ 1 - 2	★ 1 - 2
↓ 3 - 10	★ 3 - 6
↓ 11 - 30	★ 7 - 10
↓ > 30	★ > 10

Roosting Group Size	Soaring Group Size
● 1 - 2	↓ 1 - 2
● 3 - 10	↓ 3 - 6
● 11 - 30	↓ 7 - 10
● > 30	↓ > 10

**Swimming Group Size**

- 1 - 2
- 3 - 10
- 10 - 30
- > 30

**Elevation**

- 0 m
- 0 m < ≤ 65m
- > 65m

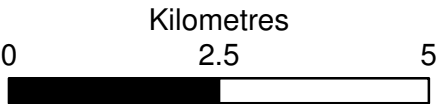


Figure 9C.55  
Seasonal Variation of the Distribution of Whimbrel in the Avifauna Assessment Area during July 2016 to June 2017  
(Total effective survey trips = 24)

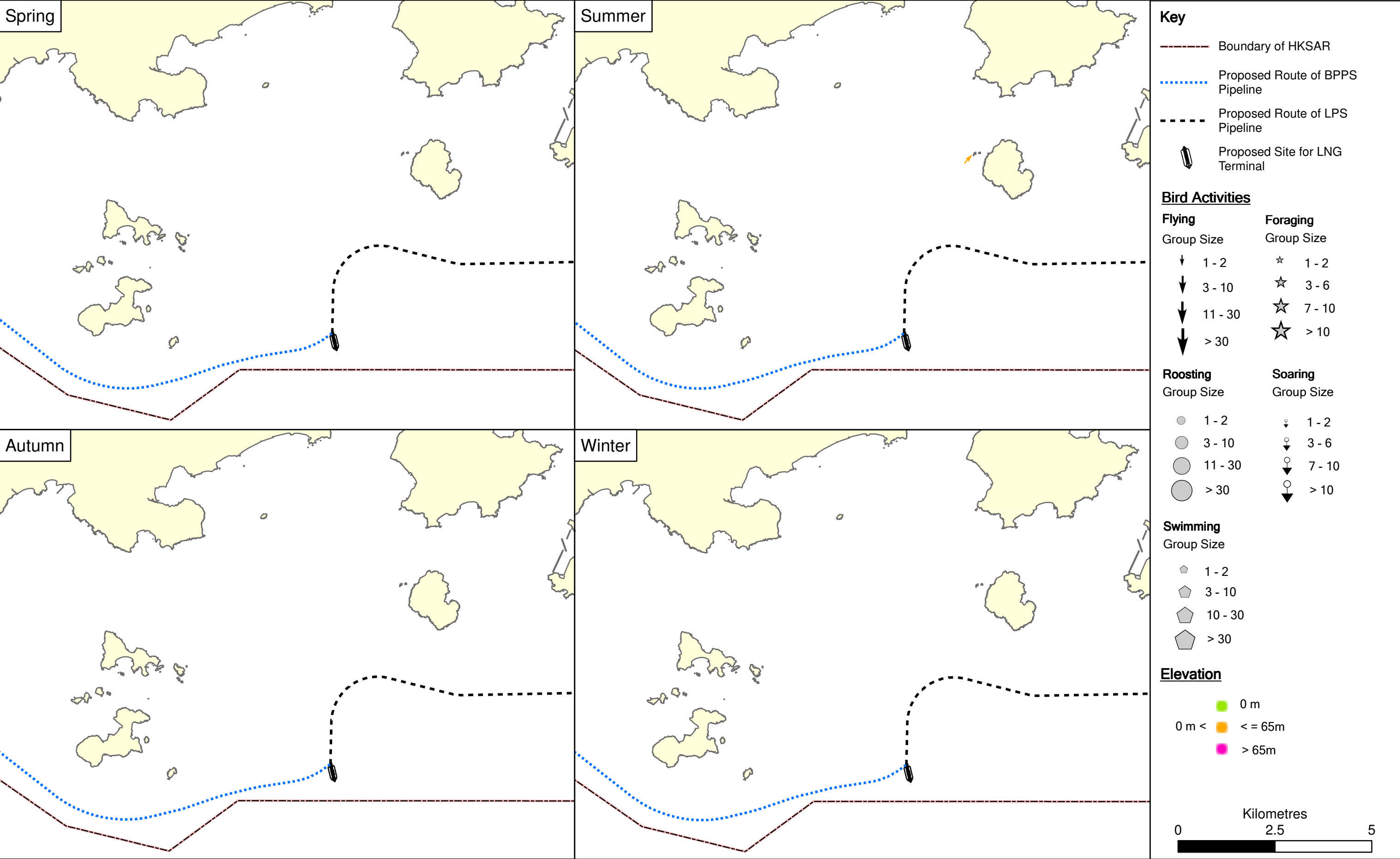
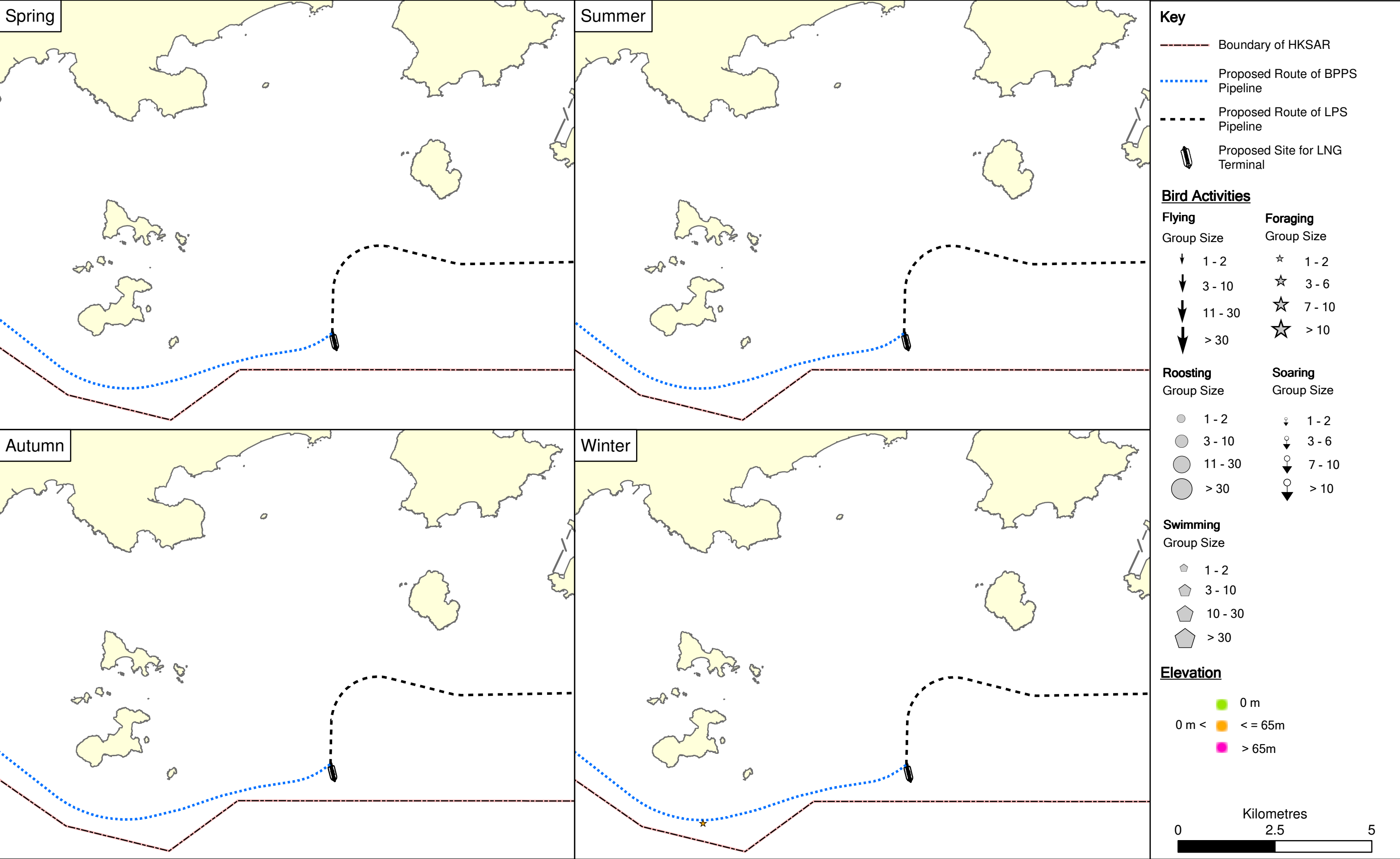


Figure 9C.56  
Seasonal Variation of the Distribution of Pied Kingfisher in the Avifauna Assessment Area during July 2016 to June 2017  
(Total effective survey trips = 24)

File: T:\GIS\CONTRACT\0359722\Mxd\Avifauna\0359722\_Pied\_Kingfisher.mxd  
Date: 23/4/2018

**Environmental Resources Management**





Key

Boundary of HKSAR

Proposed Route of BPPS Pipeline

Proposed Route of LPS Pipeline

Proposed Site for LNG Terminal

Bird Activities

Flying

Group Size

↓ 1 - 2

↓ 3 - 10

↓ 11 - 30

↓ > 30

Foraging

Group Size

☆ 1 - 2

☆ 3 - 6

☆ 7 - 10

☆ > 10

Roosting

Group Size

● 1 - 2

● 3 - 10

● 11 - 30

● > 30

Soaring

Group Size

↓ 1 - 2

↓ 3 - 6

↓ 7 - 10

↓ > 10

Swimming

Group Size

◊ 1 - 2

◊ 3 - 10

◊ 10 - 30

◊ > 30

Elevation

0 m

0 m < <= 65m

> 65m

Kilometres

0 2.5 5

Figure 9C.57 Seasonal Variation of the Distribution of Northern Pintail in the Avifauna Assessment Area during July 2016 to June 2017 (Total effective survey trips = 24)