

Table 2. Range use (50%/25% UD core areas and sighting coverage) and residency pattern of 67 individuals with 15+ sightings from the PRE humpback dolphin photo-ID catalogue during 1995-2010.

(abbreviations: MP= Sha Chau & Lung Kwu Chau Marine Park; CLK= northeast corner of airport; BR= Brothers Islands; WL= West Lantau; DB= Deep Bay; EL= East Lantau; NEL= Notheast Lantau; NWL= Northwest Lantau; SWL= Southwest Lantau; SEL= Southeast Lantau; CH=Chinese waters)

(* denotes individuals that have their gender determined by biopsy sampling)

ID#	# STG	Age Class	Gender	Residency	50% UD Core Area				25% UD Core Area				Occurrence in Survey Areas							
					MP	CLK	BR	WL	MP	CLK	BR	WL	DB	EL	NEL	NWL	WL	SWL	SEL	CH
CH06	33	SA	?	Seasonal Resident				✓				✓					✓	✓		✓
CH12	18	SA	?	Seasonal Resident				✓				✓					✓	✓		✓
CH25	15	SS	F	Seasonal Visitor				✓				✓					✓	✓		✓
CH34	34	UA	F	Year-round Resident	✓		✓				✓		✓							✓
CH38	20	SA	?	Seasonal Resident				✓				✓					✓	✓		✓
CH98	29	UA	?	Seasonal Resident	✓				✓				✓				✓	✓		✓
CH108	15	SS	F	Seasonal Resident				✓				✓					✓	✓		✓
EL01	57	UA	M*	Year-round Resident	✓			✓				✓		✓	✓	✓	✓			
EL07	62	SJ	M*	Year-round Resident				✓				✓		✓	✓	✓	✓			
NL11	64	SA	F	Seasonal Resident	✓				✓				✓							✓
NL12	20	SA	F	Seasonal Resident	✓				✓									✓		✓
NL18	72	SA	F	Year-round Resident	✓			✓				✓		✓	✓	✓				✓
NL19	31	SA	F	Seasonal Resident		✓		✓				✓		✓	✓					✓
NL20	38	UA	F	Seasonal Resident	✓				✓				✓	✓	✓	✓		✓		✓
NL24	135	SA	?	Year-round Resident	✓			✓				✓		✓	✓	✓				✓
NL33	39	SS	F*	Seasonal Resident	✓			✓				✓		✓	✓	✓				✓
NL37	42	SJ	?	Seasonal Resident	✓	✓		✓		✓		✓		✓	✓	✓				✓
NL46	33	SA	F*	Seasonal Resident	✓				✓				✓	✓	✓					✓
NL48	33	SA	?	Seasonal Resident	✓				✓				✓	✓	✓					✓
NL49	17	SA	F*	Seasonal Resident	✓				✓				✓	✓	✓	✓				✓
NL60	28	UA	?	Seasonal Resident	✓				✓				✓	✓	✓					✓
NL75	16	SA	?	Seasonal Visitor		✓		✓				✓		✓	✓					✓
NL93	22	SS	F	Seasonal Resident	✓			✓				✓		✓	✓	✓				✓
NL98	72	SS	F*	Year-round Resident	✓	✓		✓				✓		✓	✓	✓				✓
NL103	32	SA	?	Seasonal Resident	✓				✓				✓	✓	✓					✓
NL104	46	SA	F	Seasonal Resident	✓	✓		✓				✓		✓	✓	✓				✓
NL105	16	SA	?	Seasonal Resident	✓				✓				✓	✓	✓	✓				✓
NL112	16	SJ	M*	Seasonal Resident	✓				✓				✓	✓	✓	✓				✓
NL118	32	SS	F*	Seasonal Resident	✓			✓				✓		✓	✓	✓				✓
NL120	51	SS	F*	Year-round Resident				✓				✓		✓	✓	✓				✓
NL123	70	SS	F	Year-round Resident	✓	✓		✓		✓		✓		✓	✓	✓				✓
NL128	30	SA	M*	Seasonal Resident				✓				✓		✓	✓	✓		✓	✓	✓
NL136	20	UA	F*	Seasonal Resident	✓				✓				✓	✓	✓	✓				✓
NL139	62	UA	F	Seasonal Resident				✓				✓		✓	✓	✓				✓
NL145	19	SS	F	Seasonal Resident	✓				✓				✓	✓	✓	✓				✓
NL149	20	SS	?	Seasonal Resident				✓				✓		✓	✓	✓				✓
NL153	16	SS	F	Seasonal Visitor	✓				✓				✓	✓	✓					✓
NL165	28	SS	?	Year-round Resident	✓			✓				✓		✓	✓	✓				✓
NL169	19	SJ	?	Seasonal Resident	✓				✓				✓	✓	✓					✓
NL176	33	SS	F*	Seasonal Resident	✓			✓				✓		✓	✓	✓				✓
NL179	21	SJ	?	Seasonal Resident		✓		✓				✓		✓	✓					✓
NL181	19	SS	M*	Seasonal Visitor	✓				✓				✓	✓	✓					✓
NL188	26	SJ	?	Seasonal Resident	✓				✓				✓	✓	✓	✓				✓
NL191	29	SJ	?	Seasonal Resident	✓			✓				✓		✓	✓	✓				✓
NL202	23	SA	F	Seasonal Resident	✓				✓				✓	✓	✓	✓				✓
NL206	20	SJ	F	Seasonal Resident				✓				✓		✓	✓	✓		✓		✓
NL233	19	SS	F	Seasonal Resident	✓				✓				✓	✓	✓	✓				✓
NL242	15	SA	F	Seasonal Resident	✓				✓				✓	✓	✓	✓				✓
SL05	25	UA	F	Seasonal Visitor				✓				✓				✓	✓			✓
SL07	24	UA	?	Seasonal Resident				✓				✓				✓	✓	✓	✓	✓
SL27	19	SJ	?	Seasonal Resident				✓				✓				✓	✓	✓		✓
SL35	45	SS	?	Year-round Resident				✓				✓		✓	✓	✓	✓	✓	✓	✓
WL05	19	SS	?	Seasonal Resident	✓				✓				✓	✓	✓	✓				✓
WL09	20	SJ	?	Seasonal Resident				✓				✓		✓	✓	✓				✓
WL11	37	SS	F*	Year-round Resident	✓				✓				✓	✓	✓	✓				✓
WL15	38	SS	M*	Seasonal Resident				✓				✓		✓	✓	✓				✓
WL21	26	SS	F	Seasonal Resident				✓				✓		✓	✓	✓				✓
WL25	71	SA	F	Year-round Resident				✓				✓		✓	✓	✓				✓
WL37	12	SS	?	Seasonal Resident				✓				✓		✓	✓					✓
WL40	17	SA	F*	Seasonal Resident	✓			✓		✓			✓	✓	✓					✓
WL42	37	SS	?	Year-round Resident				✓				✓		✓	✓	✓				✓
WL50	21	SJ	F	Year-round Resident				✓				✓		✓	✓	✓				✓
WL55	25	SJ	?	Year-round Resident				✓				✓		✓	✓	✓				✓
WL61	17	SJ	?	Seasonal Resident				✓				✓		✓	✓					✓
WL62	25	UA	F	Seasonal Resident				✓				✓		✓	✓	✓				✓
WL69	26	SA	?	Seasonal Resident				✓				✓		✓	✓	✓				✓
WL109	24	SJ	?	Seasonal Resident				✓				✓		✓	✓	✓				✓

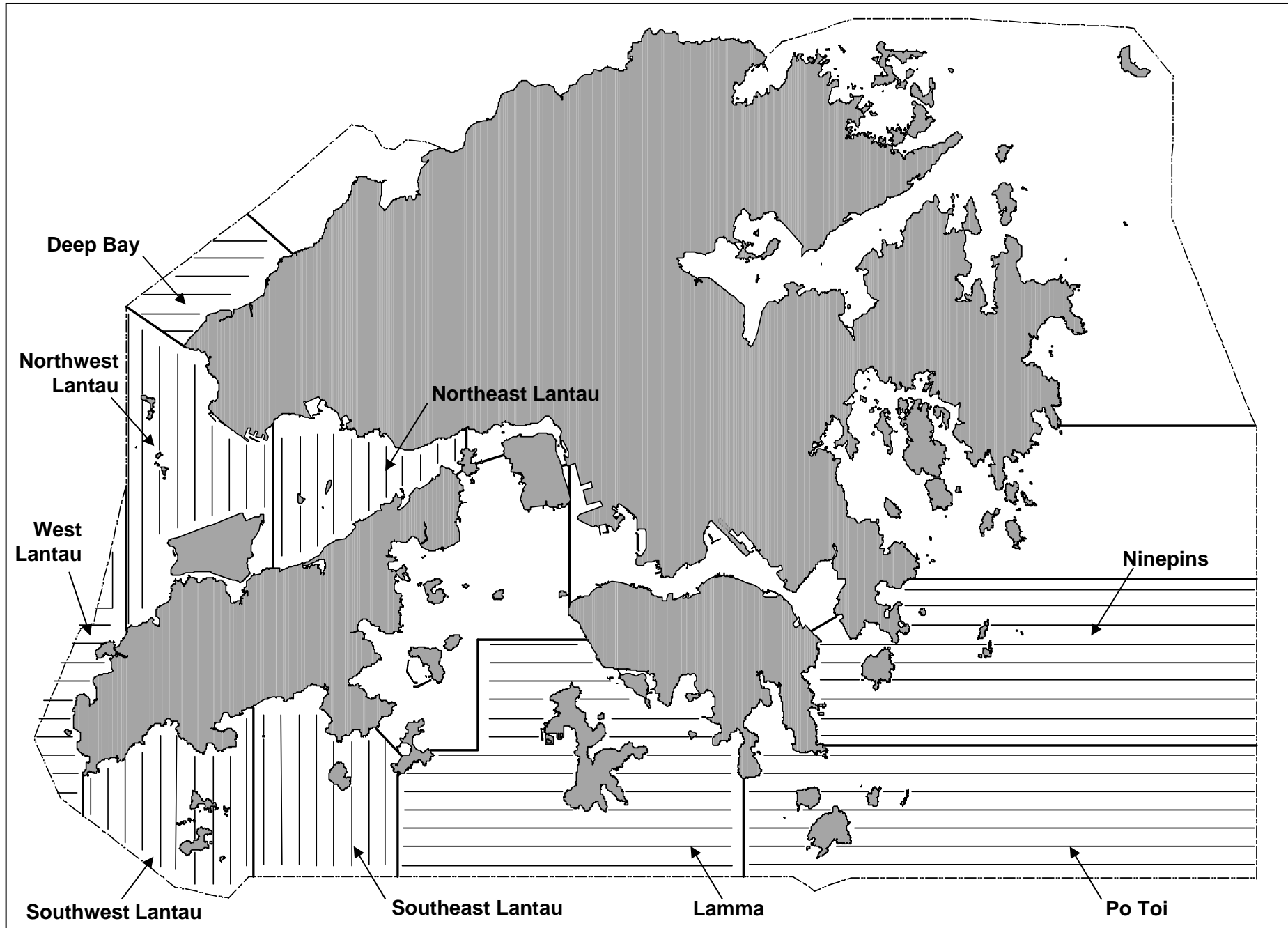


Figure 1. Nine Line-Transect Survey Areas within the Study Area

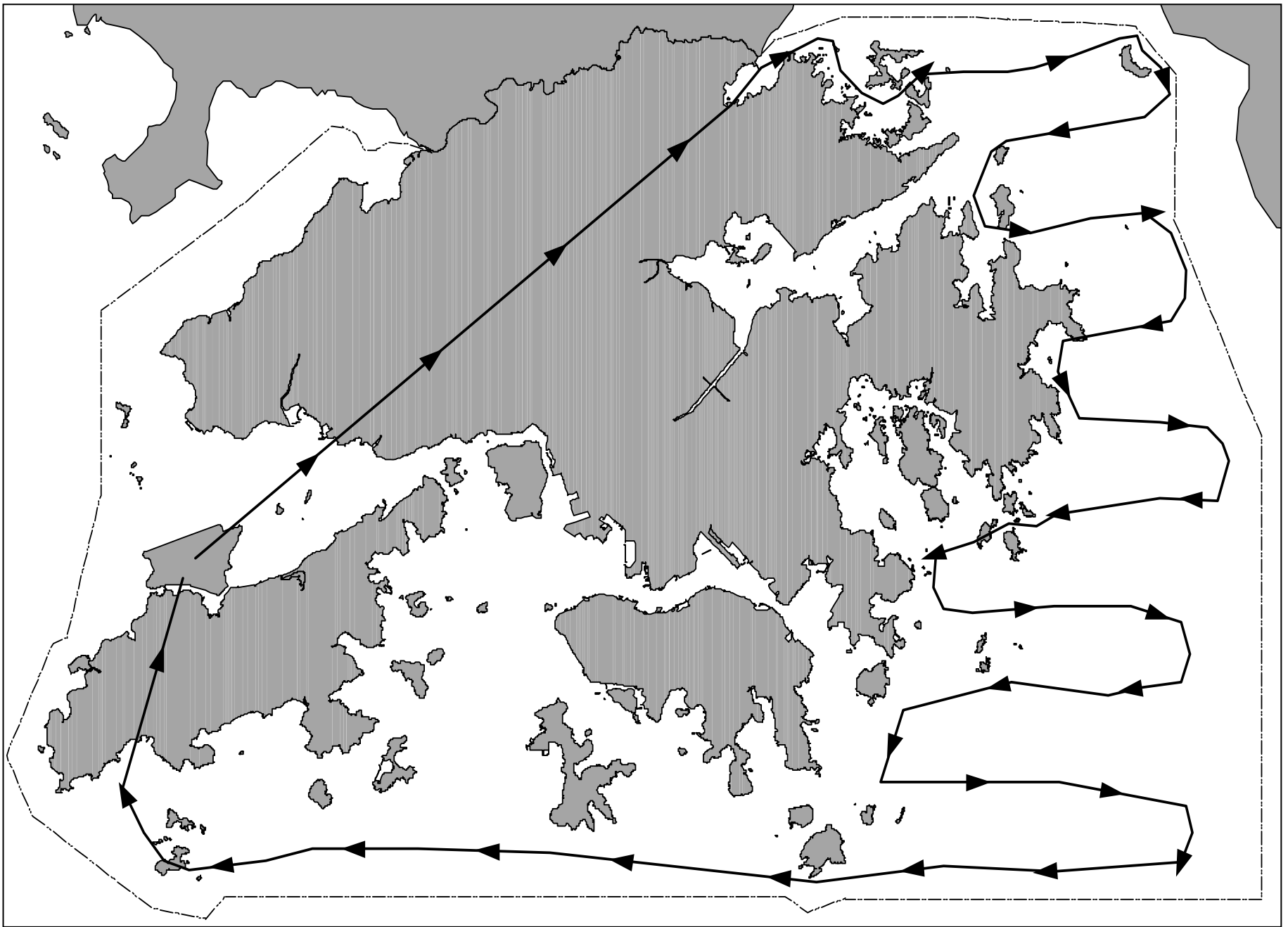


Figure 2. Survey Route for Helicopter Surveys in Eastern and Southern Waters of Hong Kong

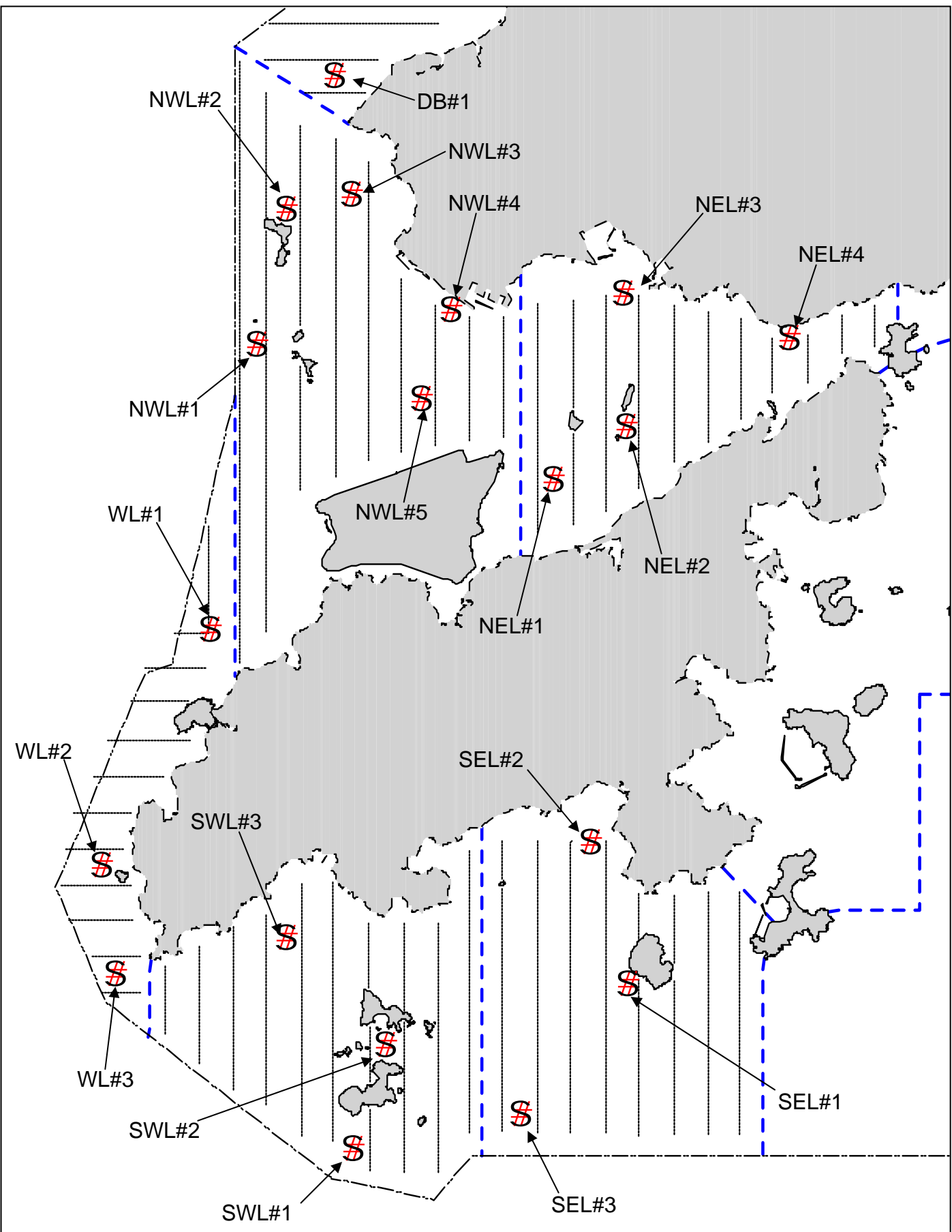


Figure 3. Locations of various acoustic monitoring stations around Lantau waters

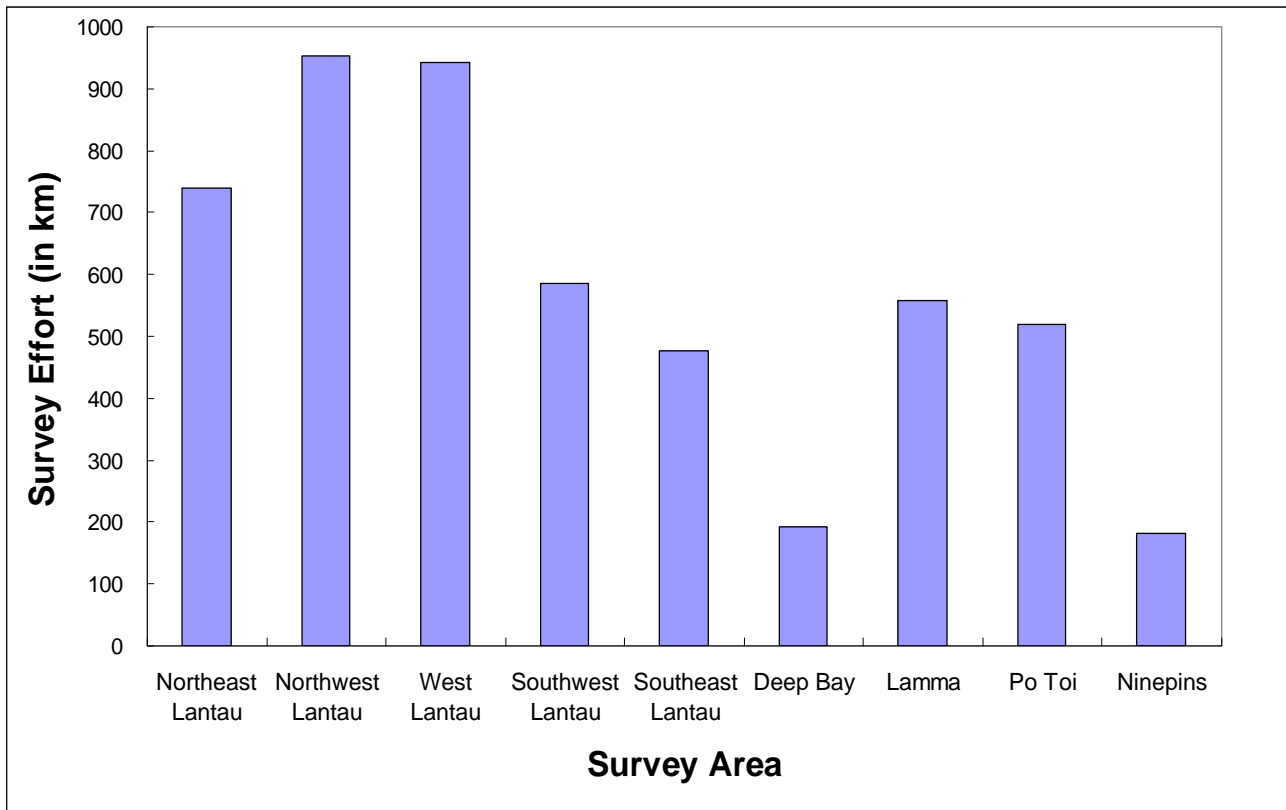


Figure 4a. Distribution of survey effort among nine survey areas from April 2010 – March 2011

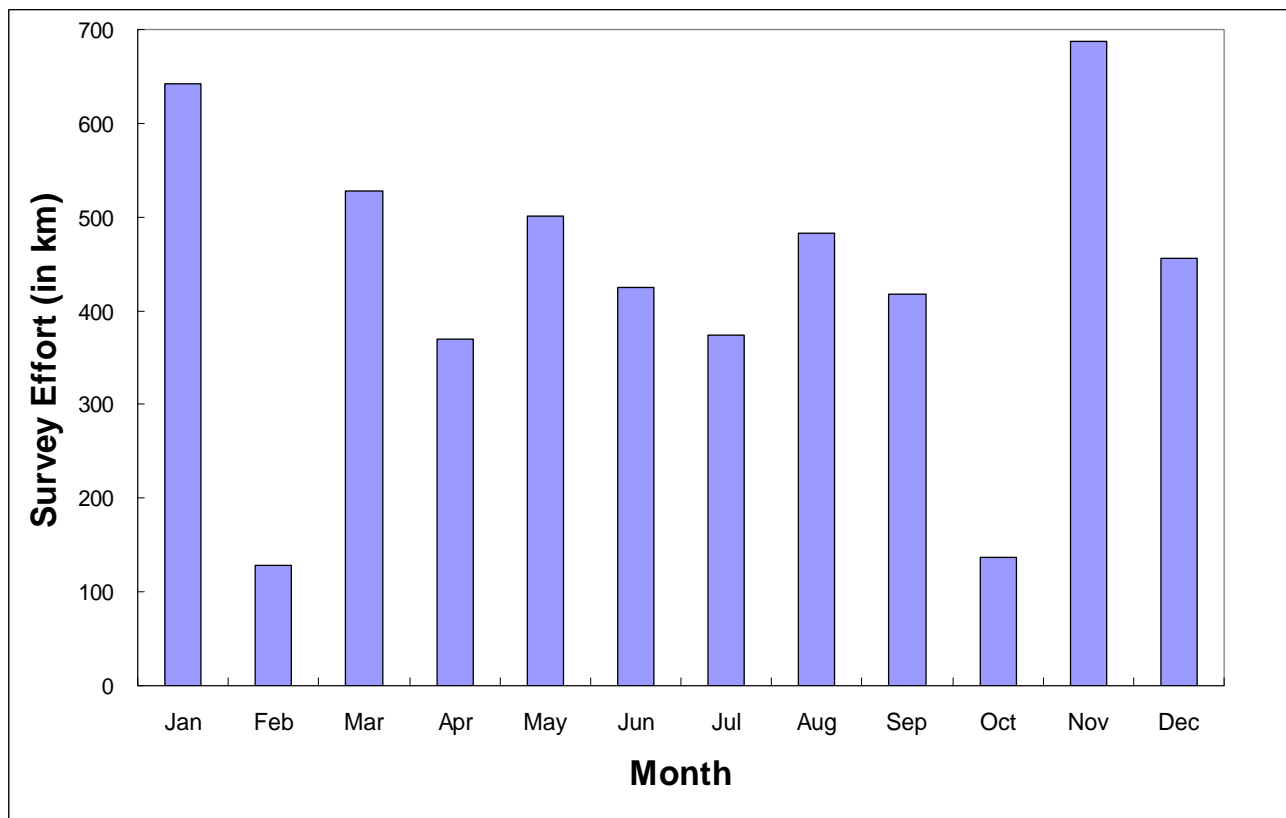


Figure 4b. Distribution of survey effort among different months from April 2010 – March 2011

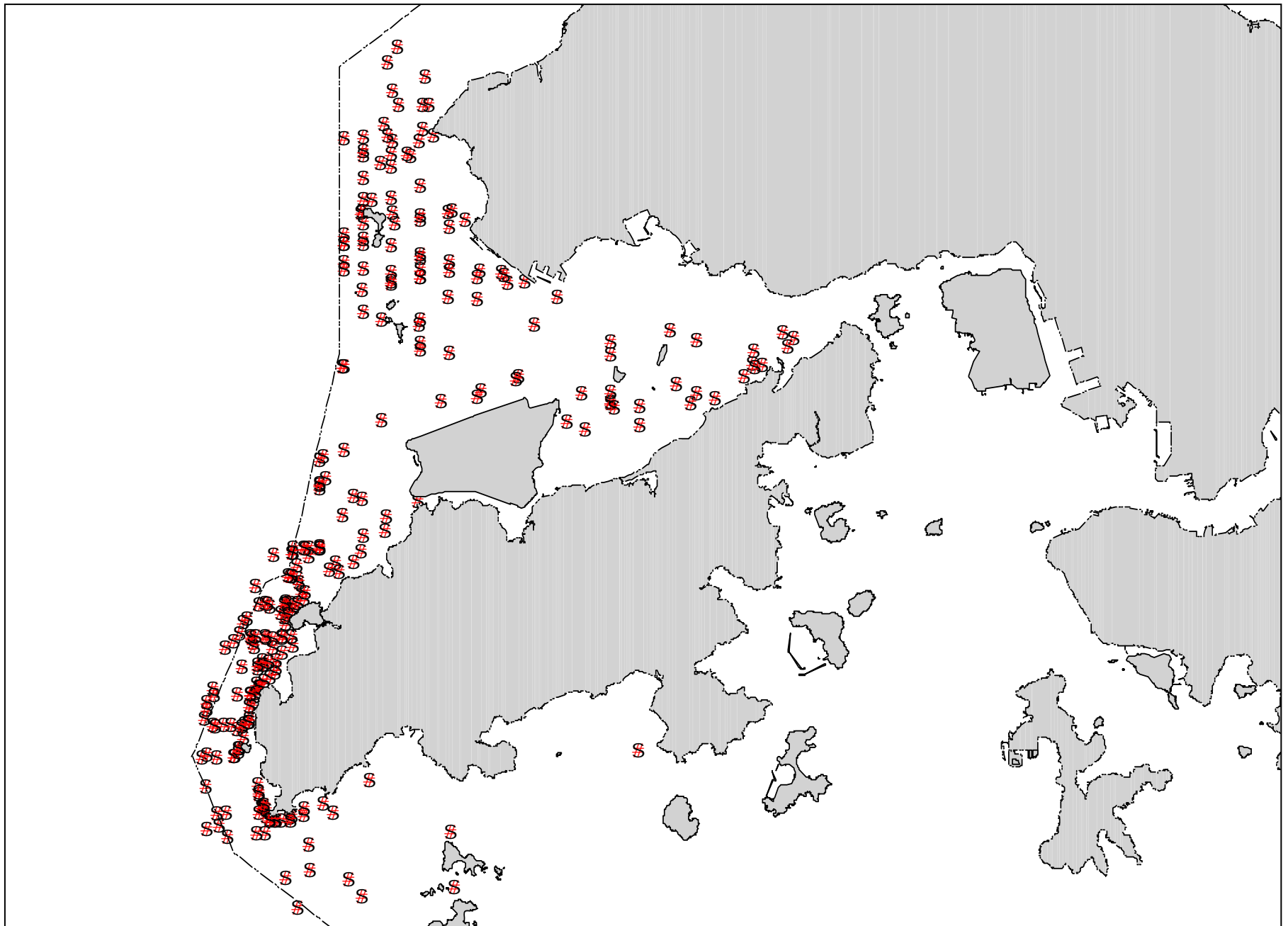


Figure 5. Distribution of Chinese white dolphin sightings in Hong Kong waters (April 2010 – March 2011)

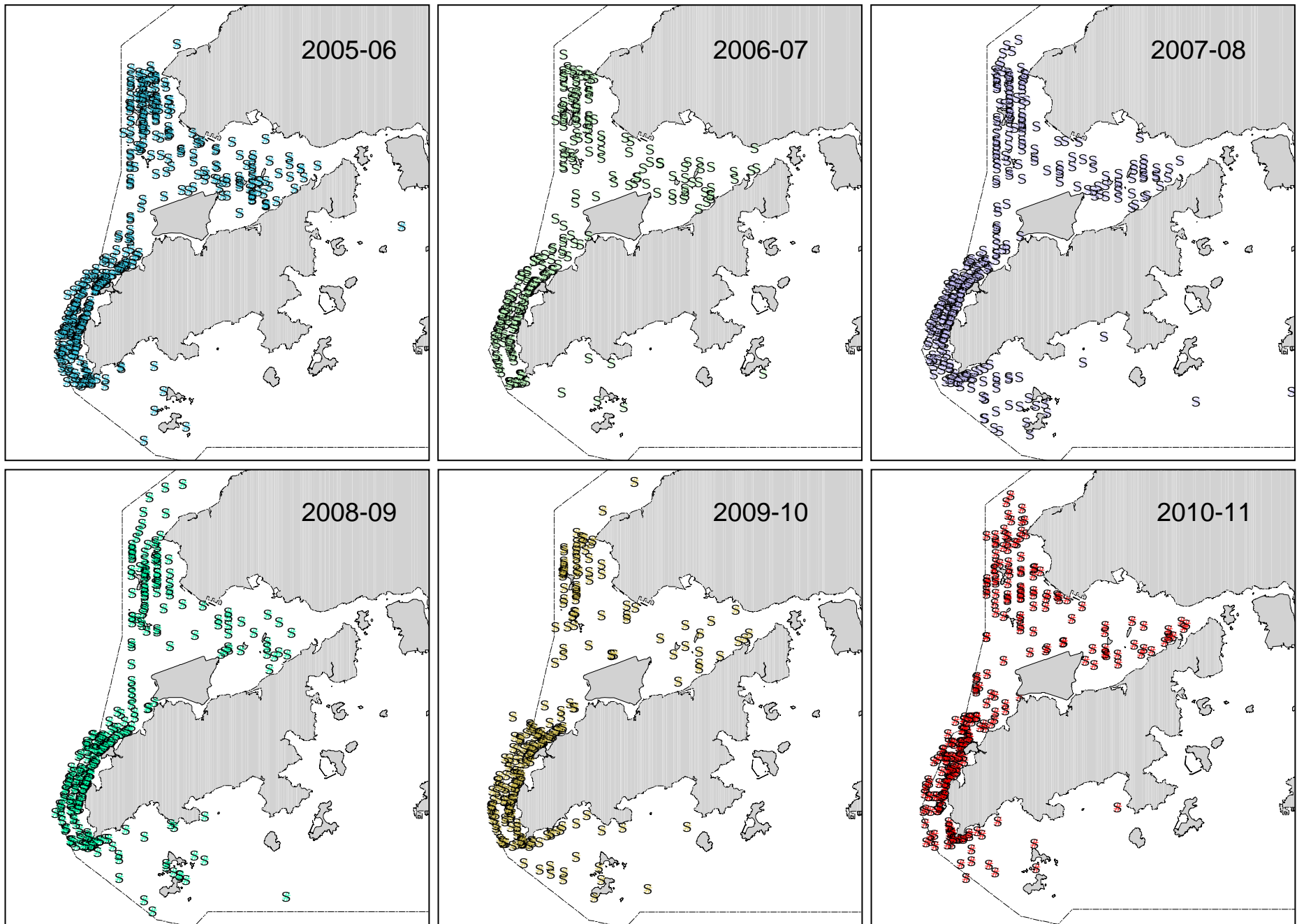


Figure 6. Comparison of dolphin distribution patterns from the past six years of monitoring period (2005-11)

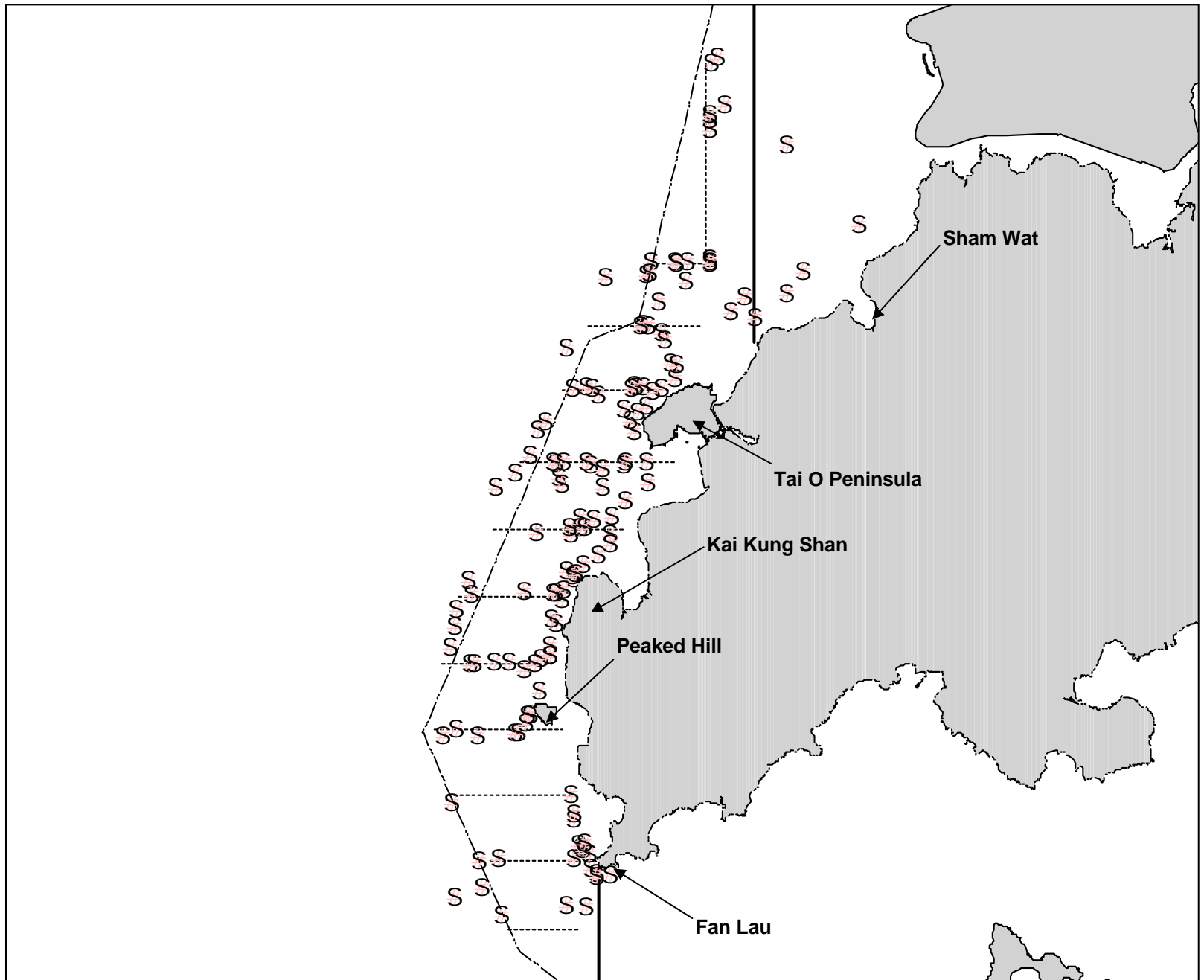


Figure 7. Distribution of Chinese white dolphin sightings in West Lantau waters (April 2010 – March 2011)

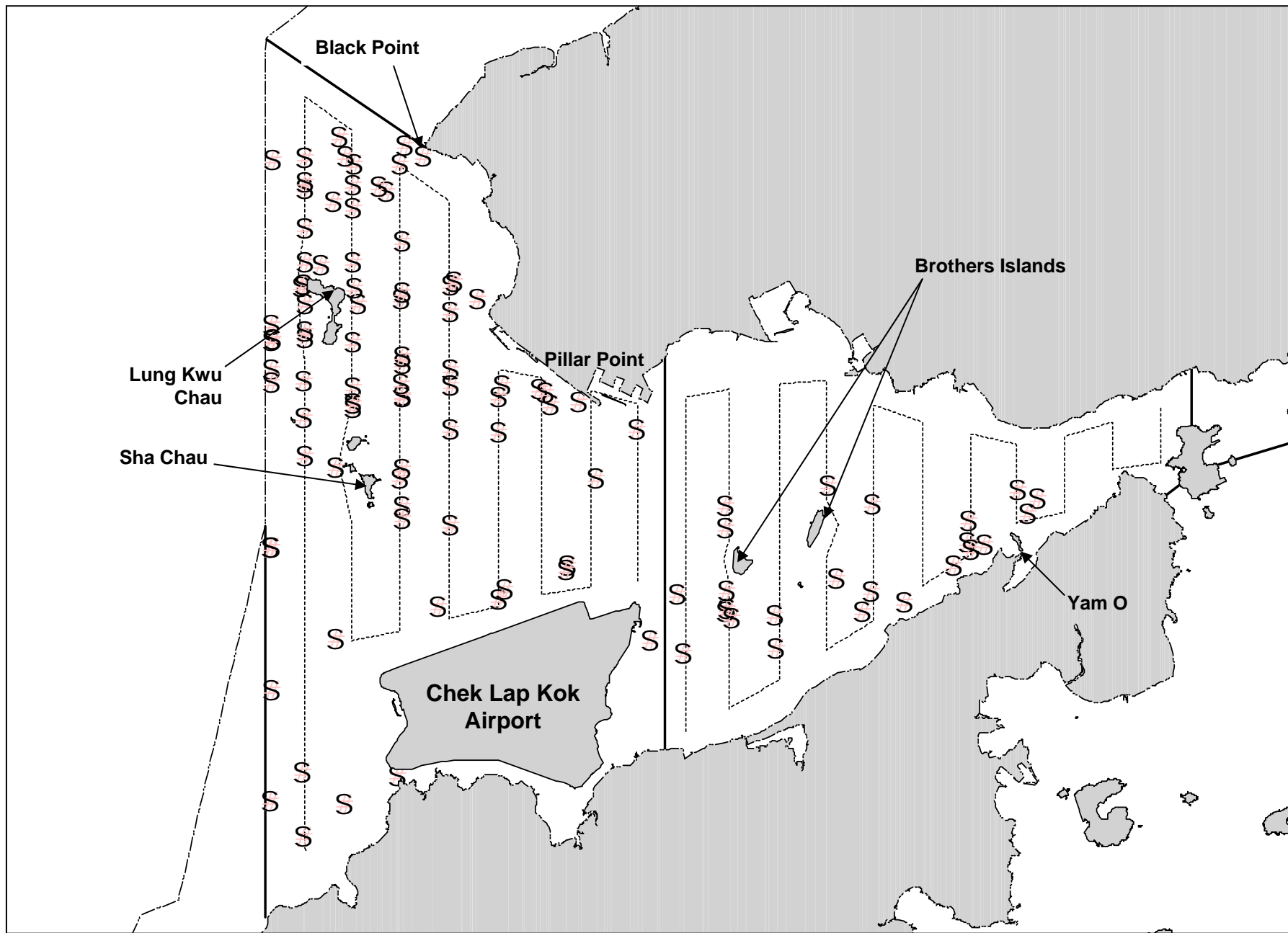


Figure 8. Distribution of Chinese white dolphin sightings in North Lantau waters (April 2010 – March 2011)

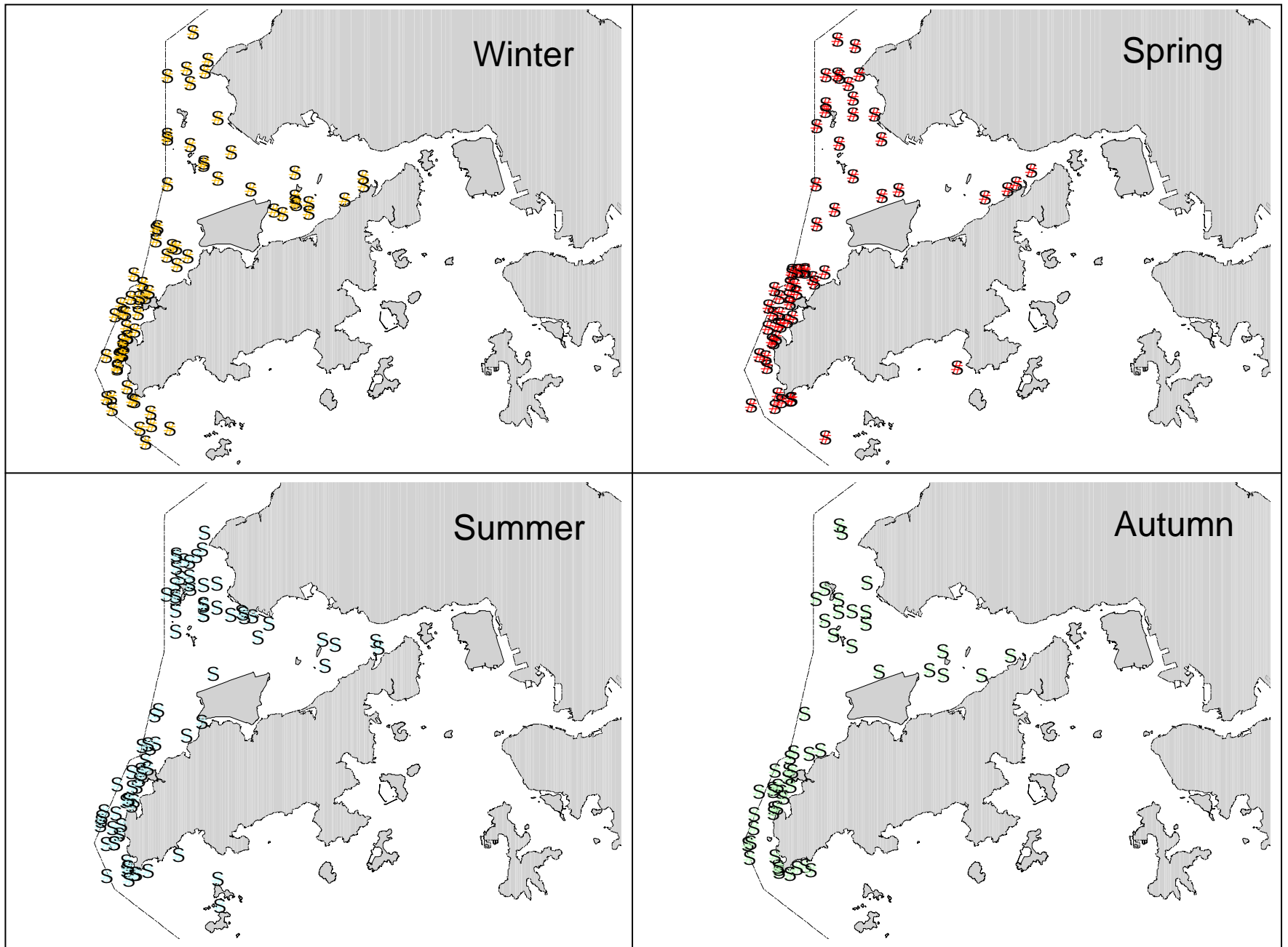


Figure 9. Seasonal distribution of Chinese white dolphins in Hong Kong waters (April 2009 – March 2011)

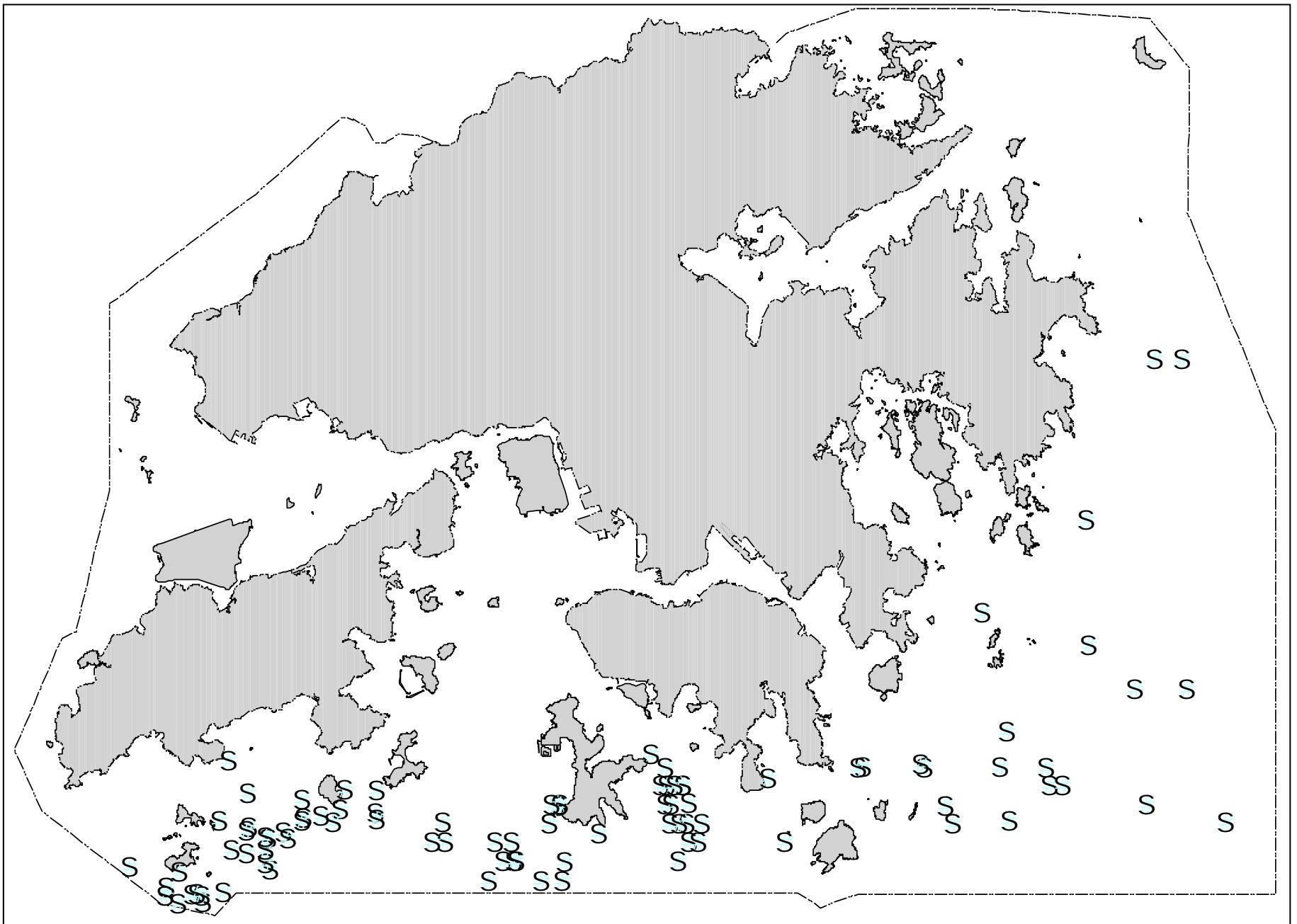


Figure 10. Distribution of finless porpoise sightings (April 2010 – March 2011)

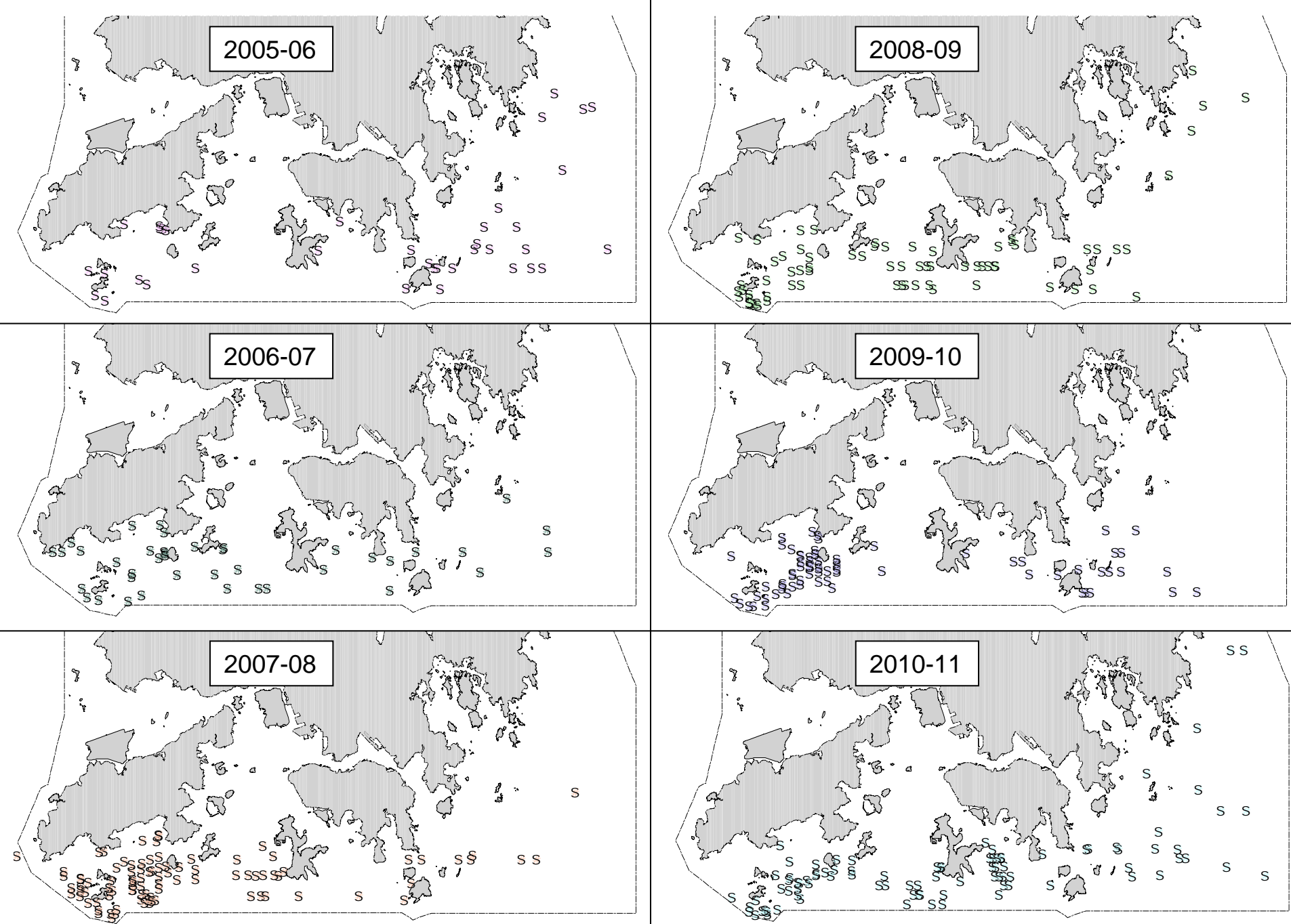


Figure 11. Comparison of porpoise distribution patterns from the past six years of monitoring period (2005-11)

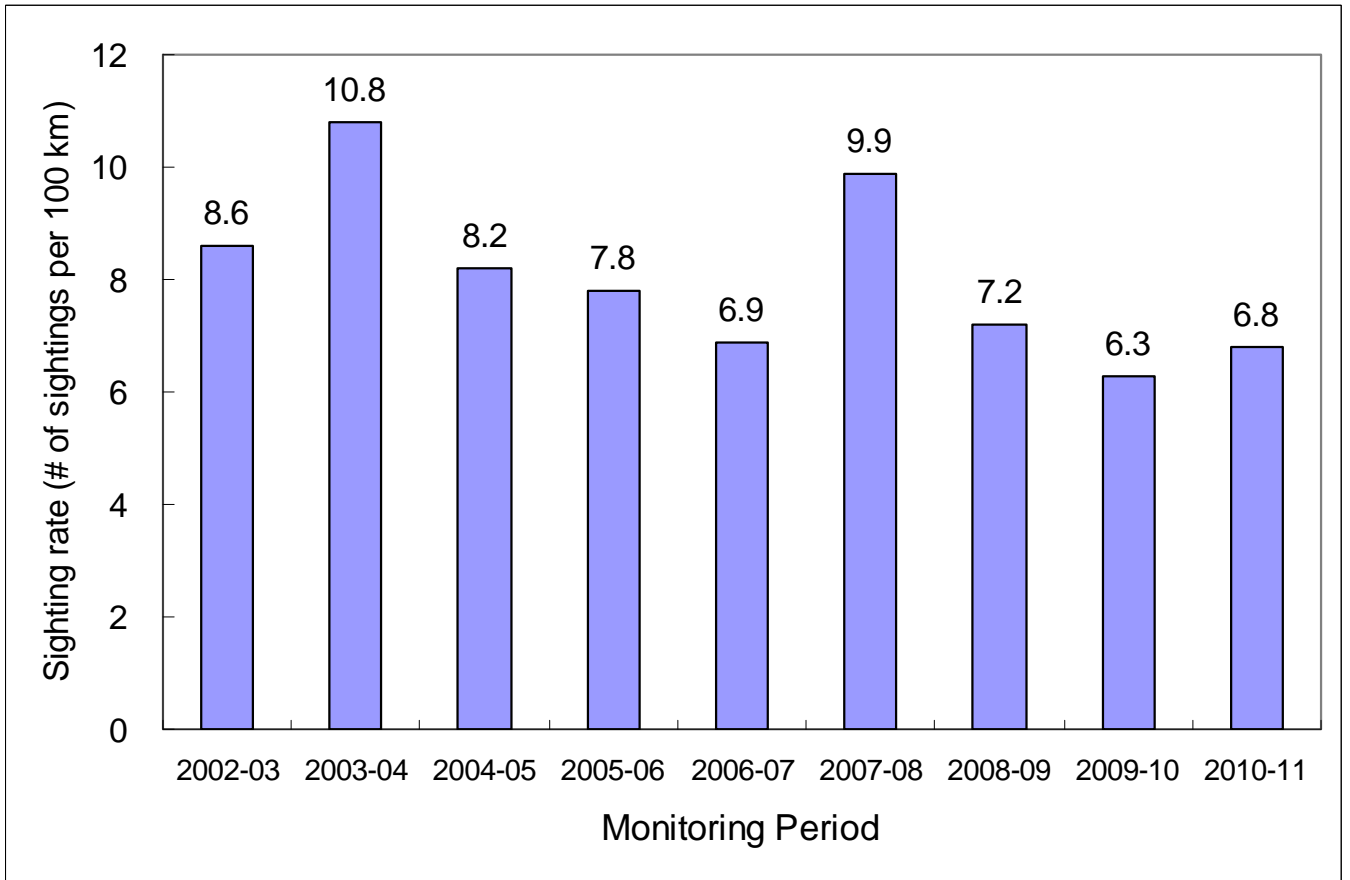


Figure 12. Temporal trend of dolphin encounter rates (combined from West, Northwest, Northeast and Southwest Lantau survey areas) in the past seven monitoring periods from 2002-11

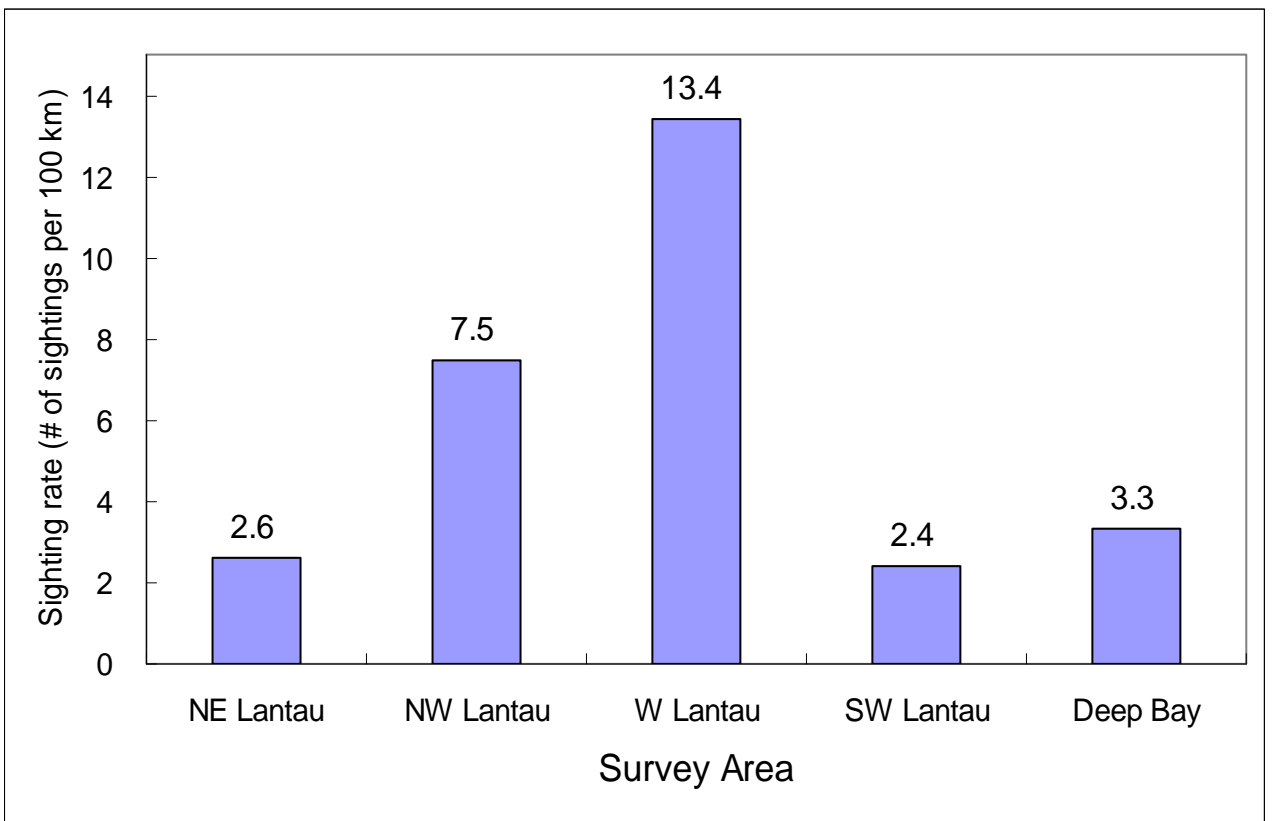


Figure 13a. Encounter rates of Chinese white dolphins among different survey areas (April 2010 – March 2011)

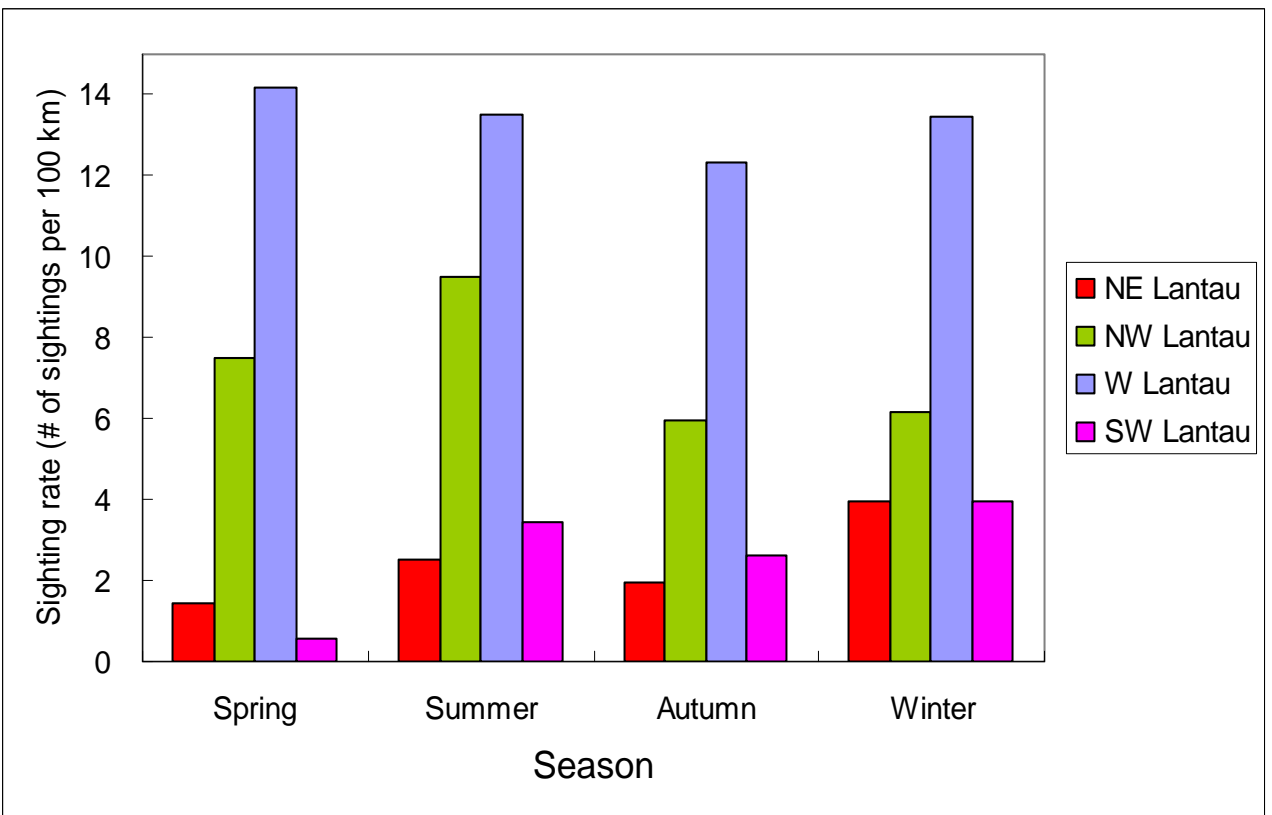


Figure 13b. Seasonal encounter rates of Chinese white dolphins among different survey areas (April 2010 – March 2011)

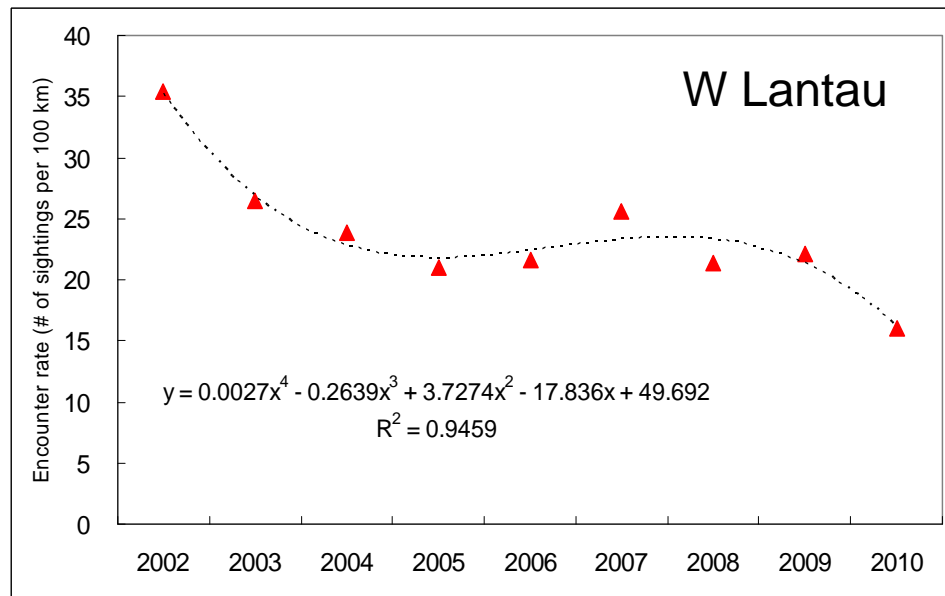
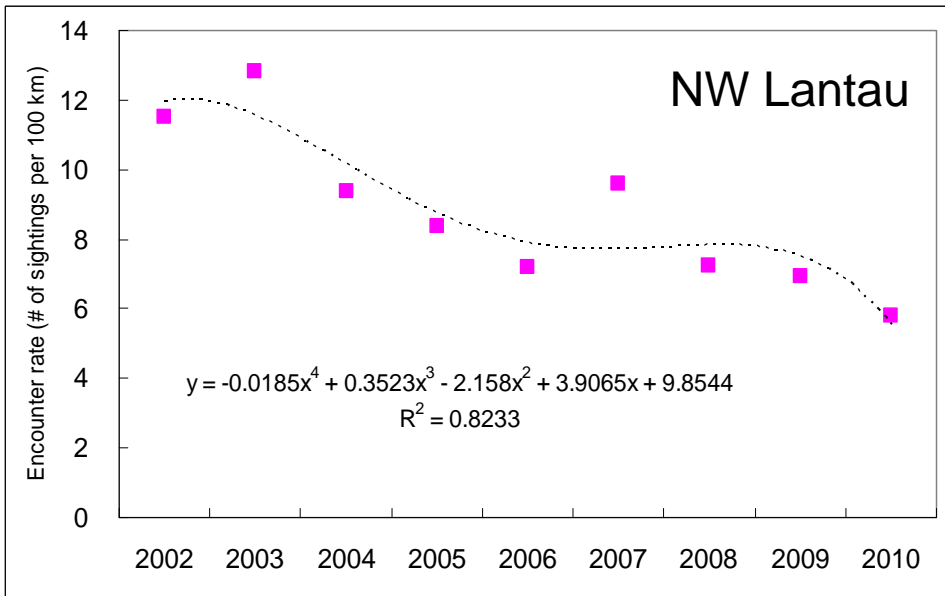
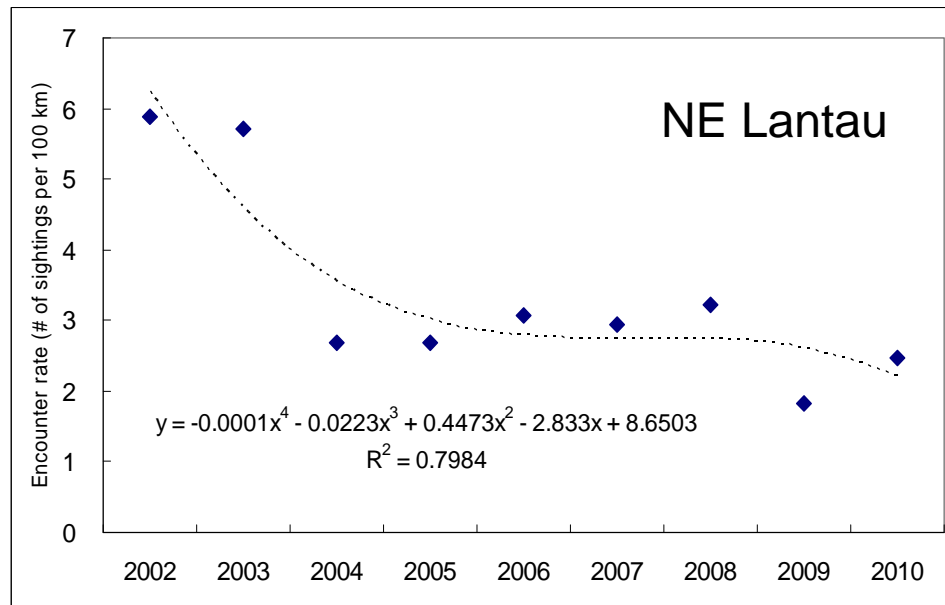
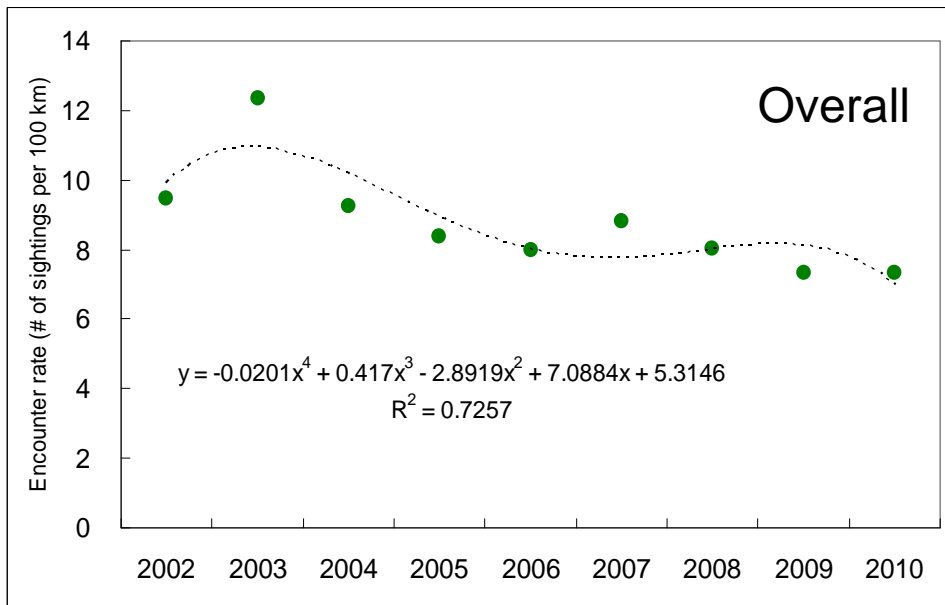


Figure 14. Temporal trends in annual encounter rates of Chinese white dolphins among different survey areas

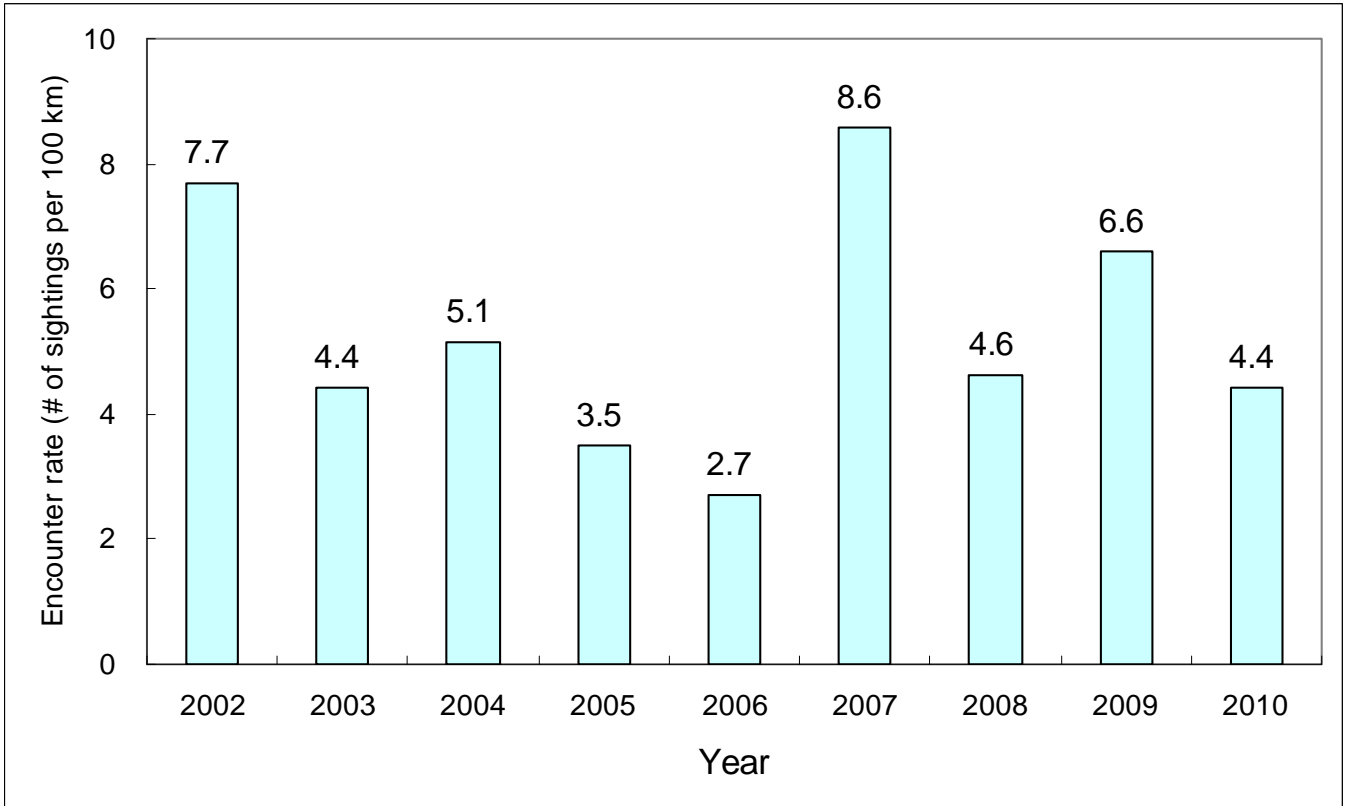


Figure 15. Temporal trend of annual encounter rates of finless porpoises (combined from Southwest and Southeast Lantau, Lamma and Po Toi survey areas) from 2002-10

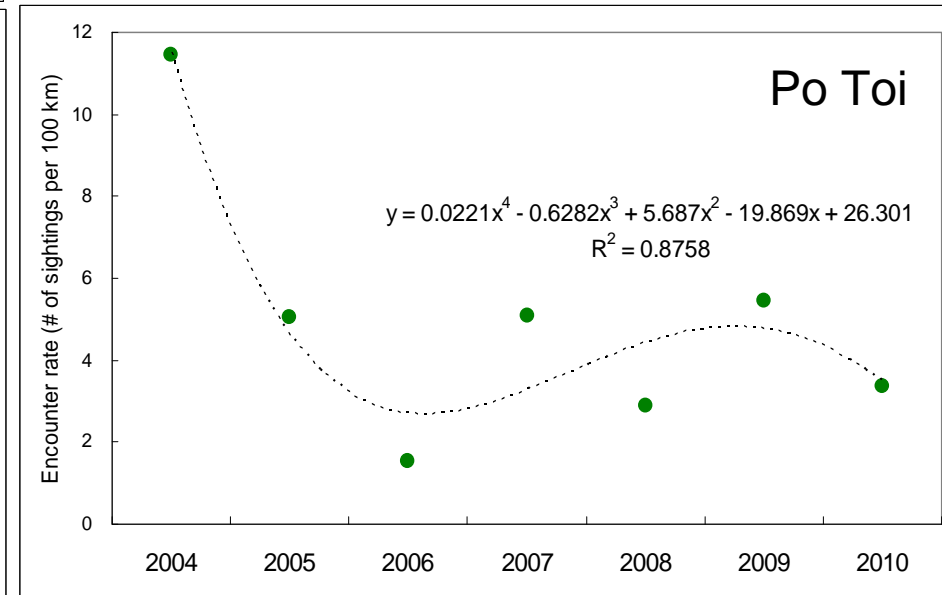
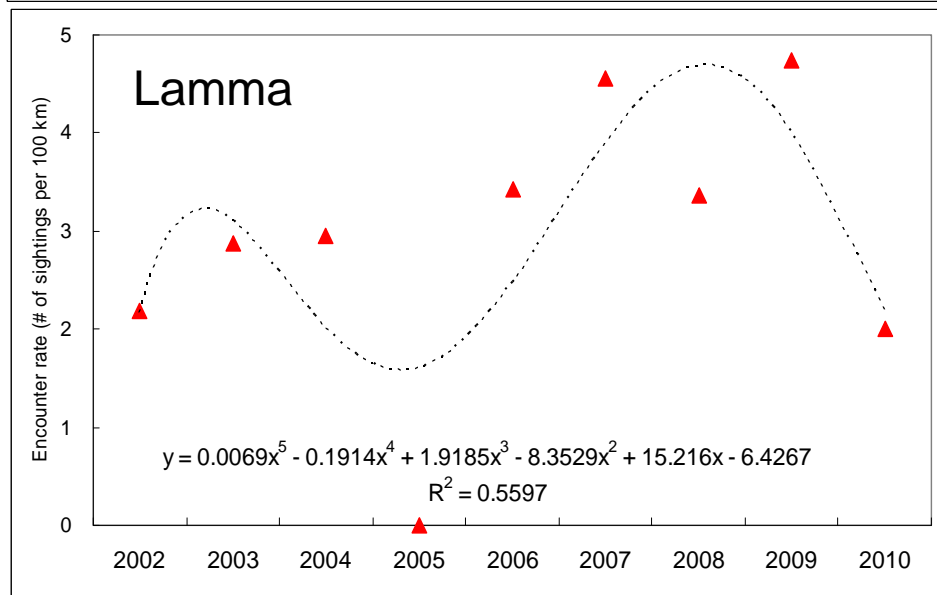
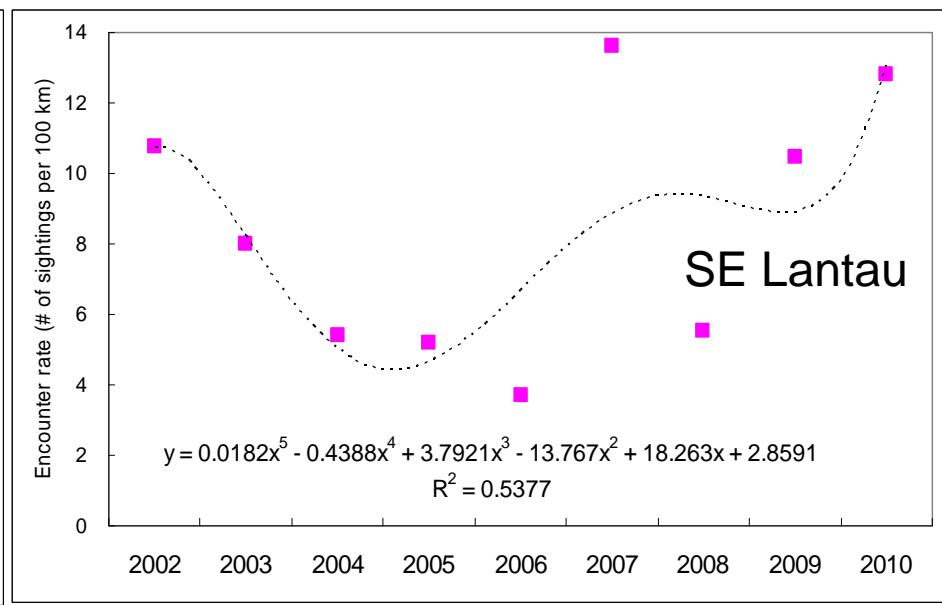
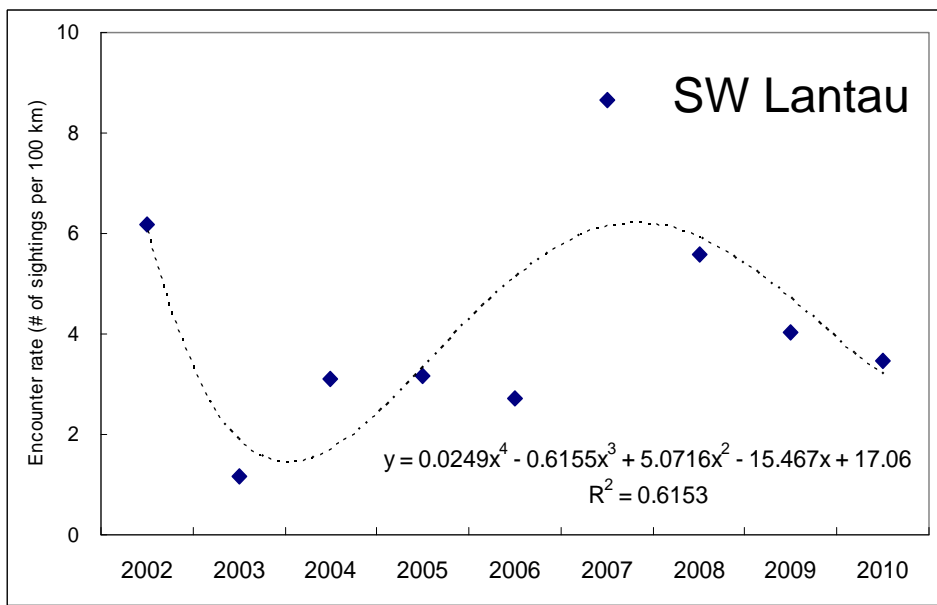


Figure 16. Temporal trends in annual encounter rates of finless porpoises among different survey areas

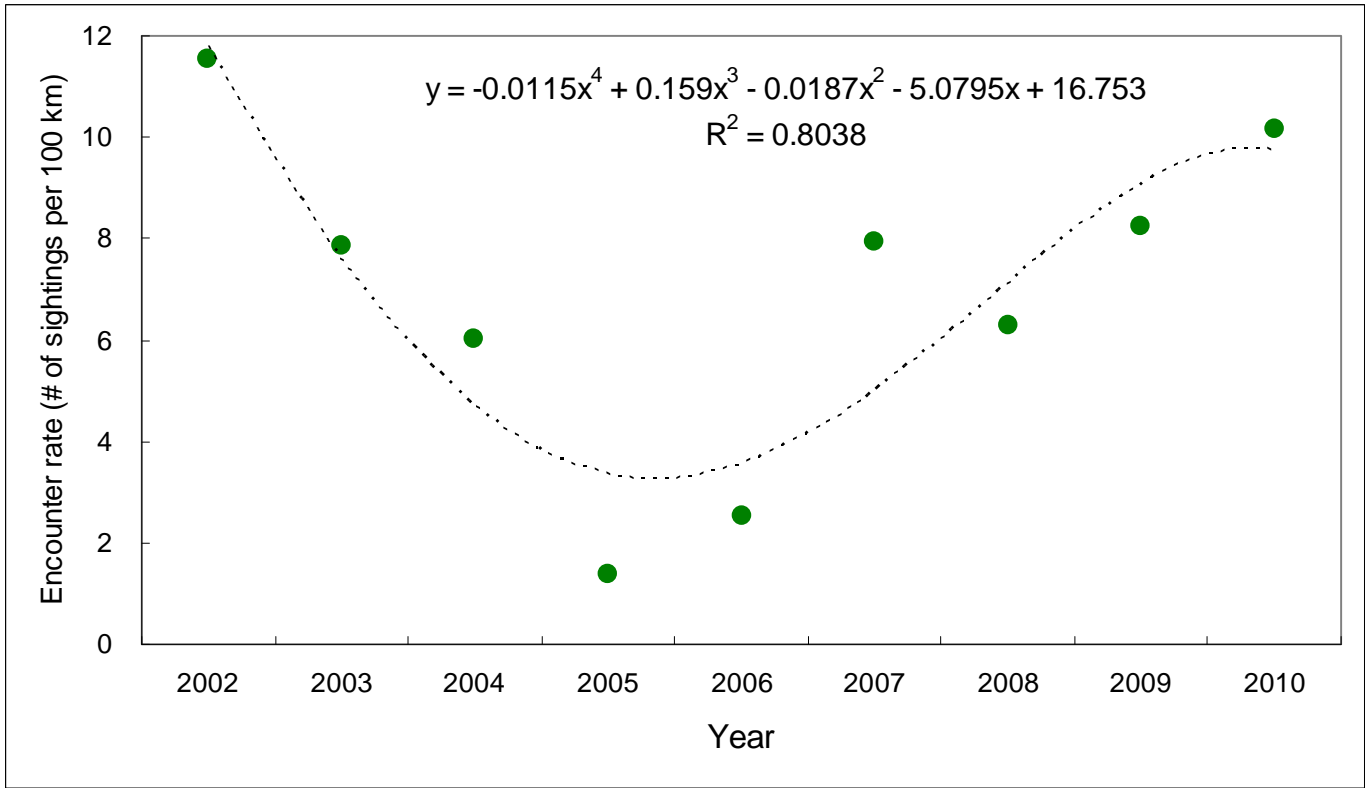


Figure 17. Temporal trend of porpoise encounter rates in South Lantau and Lamma waters combined from winter/spring months of 2002-10

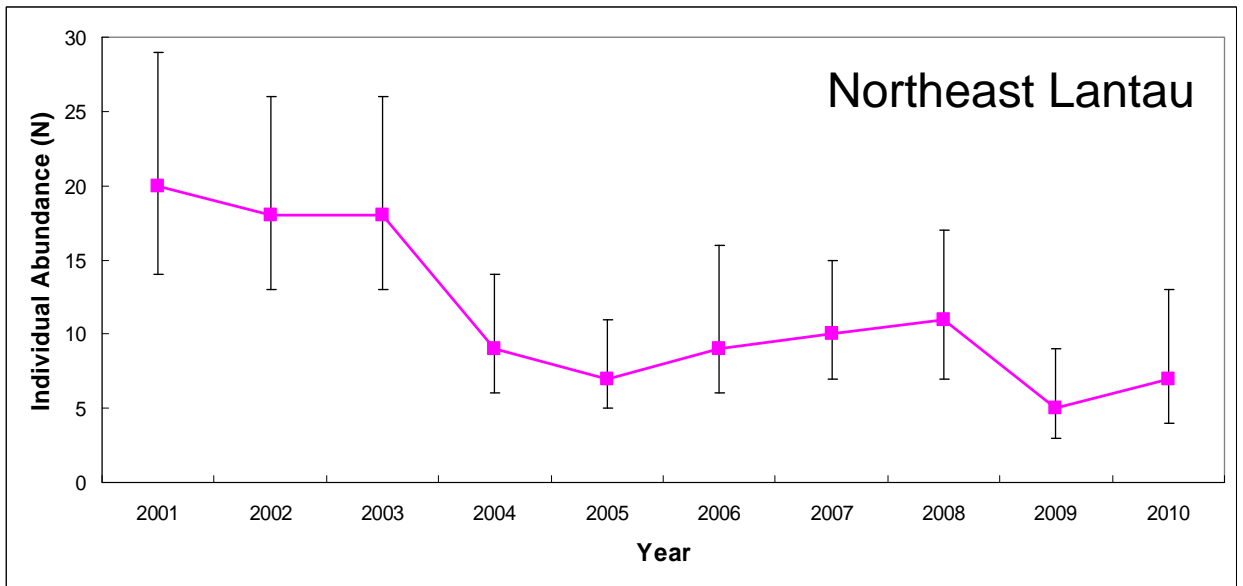
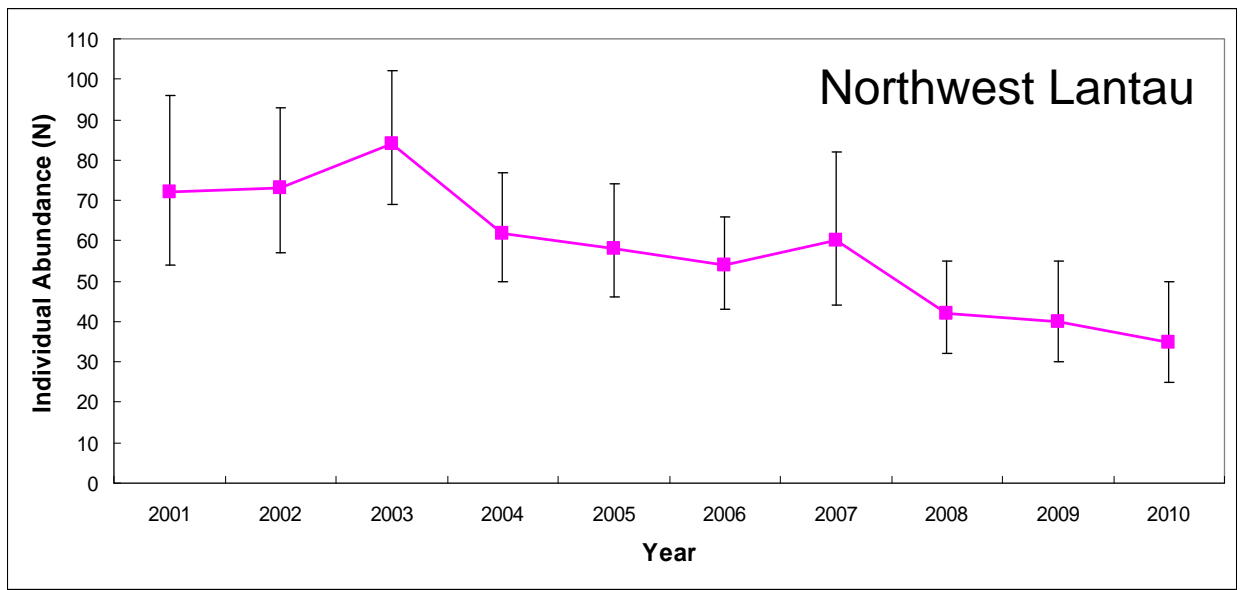
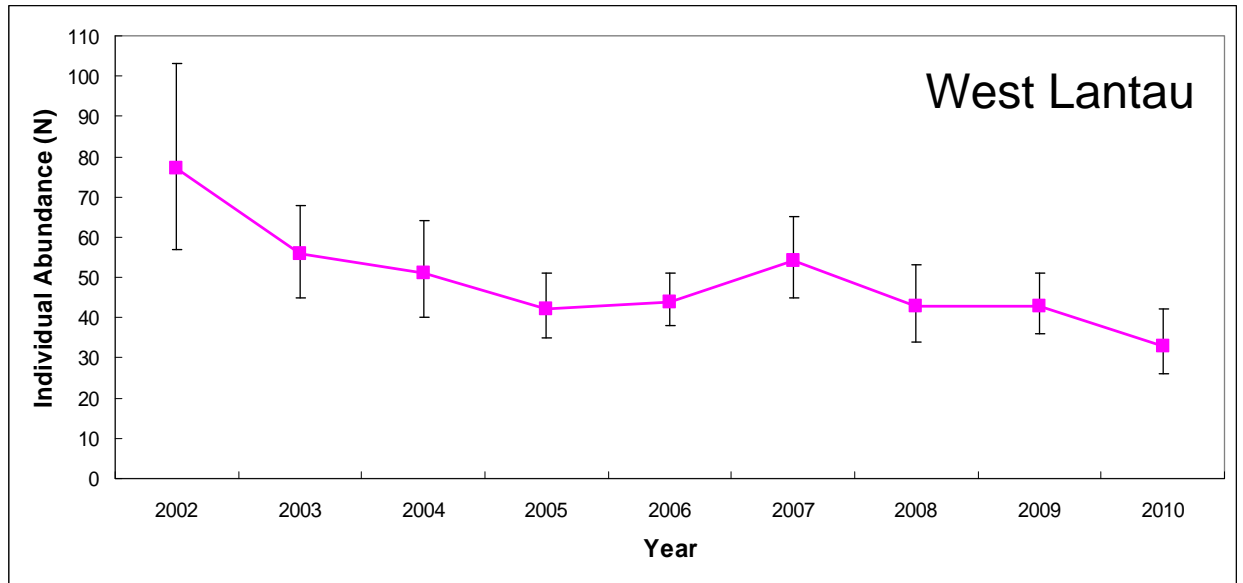


Figure 18. Temporal trends in abundance estimates of Chinese white dolphins in West, Northwest & Northeast Lantau from 2001-10 (error bars: 95% confidence interval of abundance estimates)

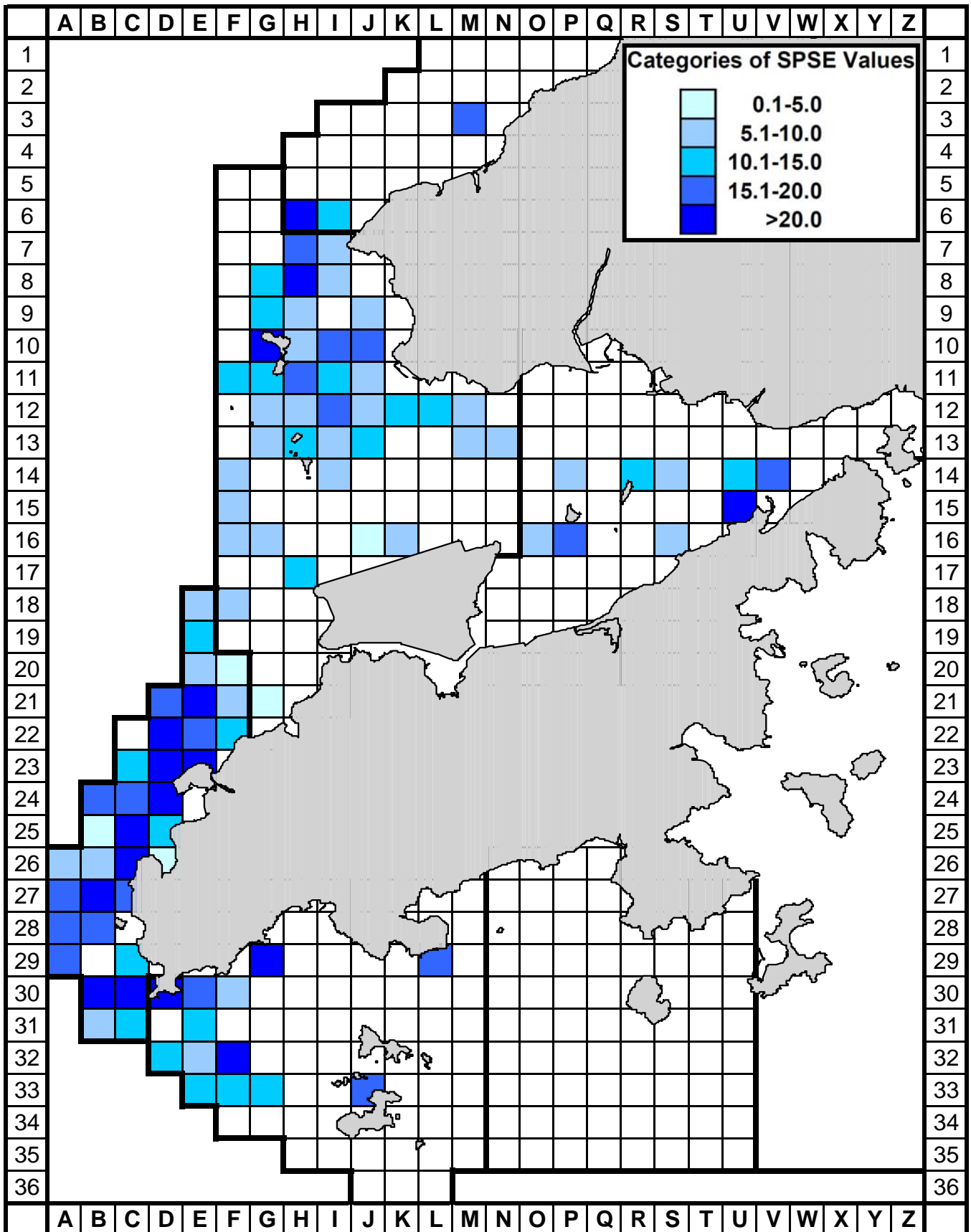


Figure 19. Sighting density of Chinese white dolphins with corrected survey effort per km² in waters around Lantau Island, using data collected during 2010 (SPSE = no. of on-effort dolphin sightings per 100 units of survey effort)

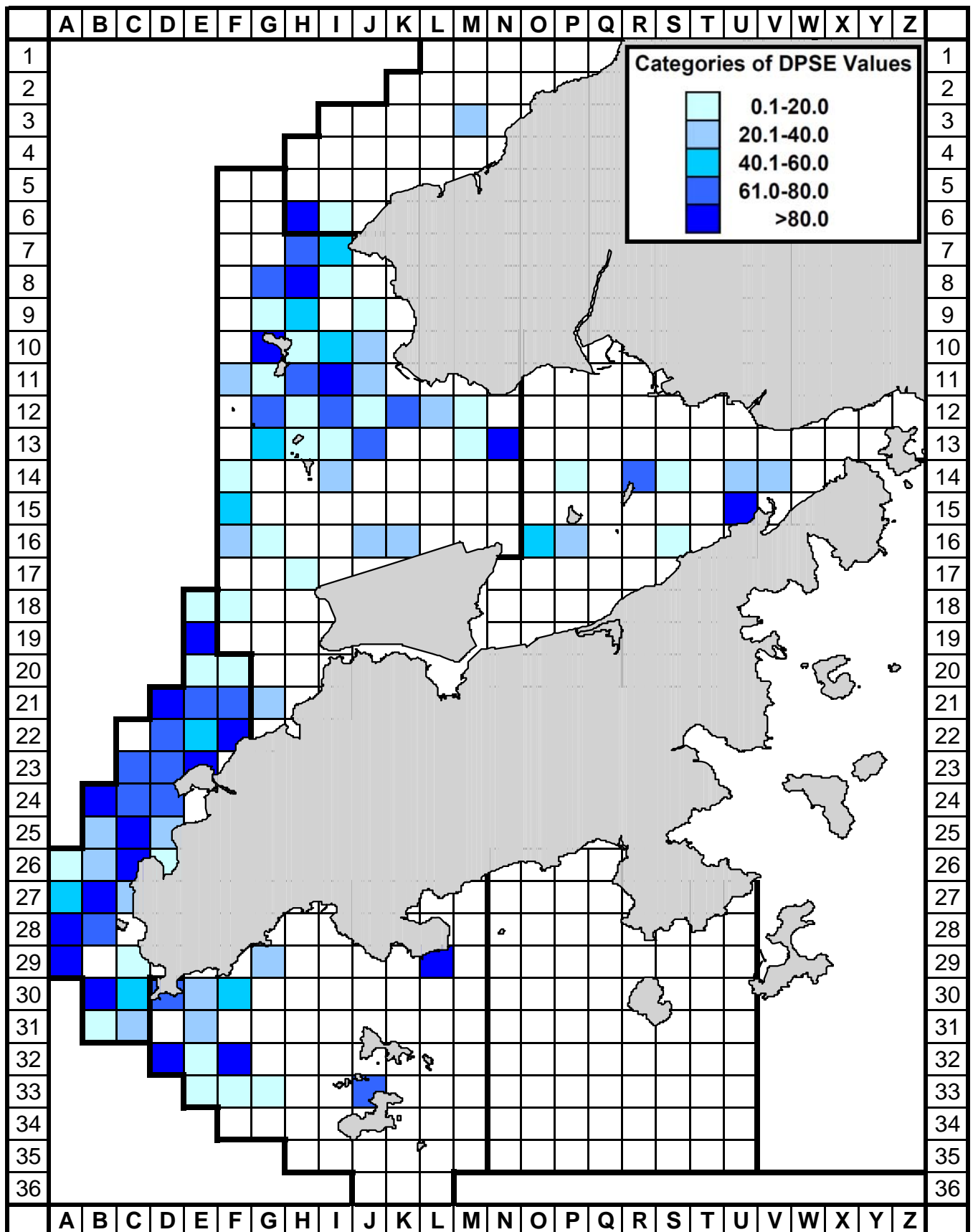


Figure 20. Density of Chinese white dolphins with corrected survey effort per km² in waters around Lantau Island, using data collected during 2010 (DPSE = no. of dolphins per 100 units of survey effort)

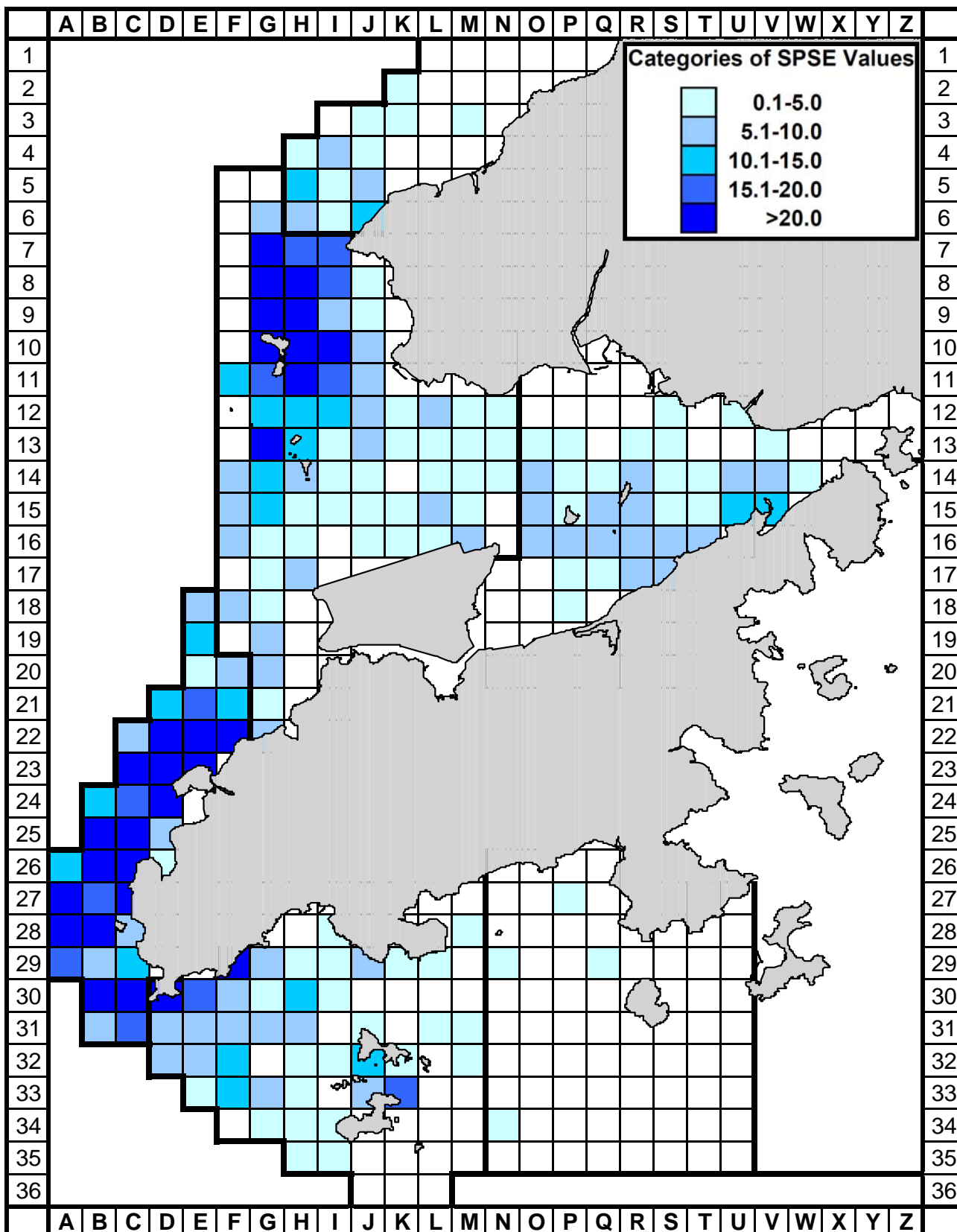


Figure 21. Sighting density of Chinese white dolphins with corrected survey effort per km² in waters around Lantau Island, using data collected during 2006-10 (SPSE = no. of on-effort dolphin sightings per 100 units of survey effort)

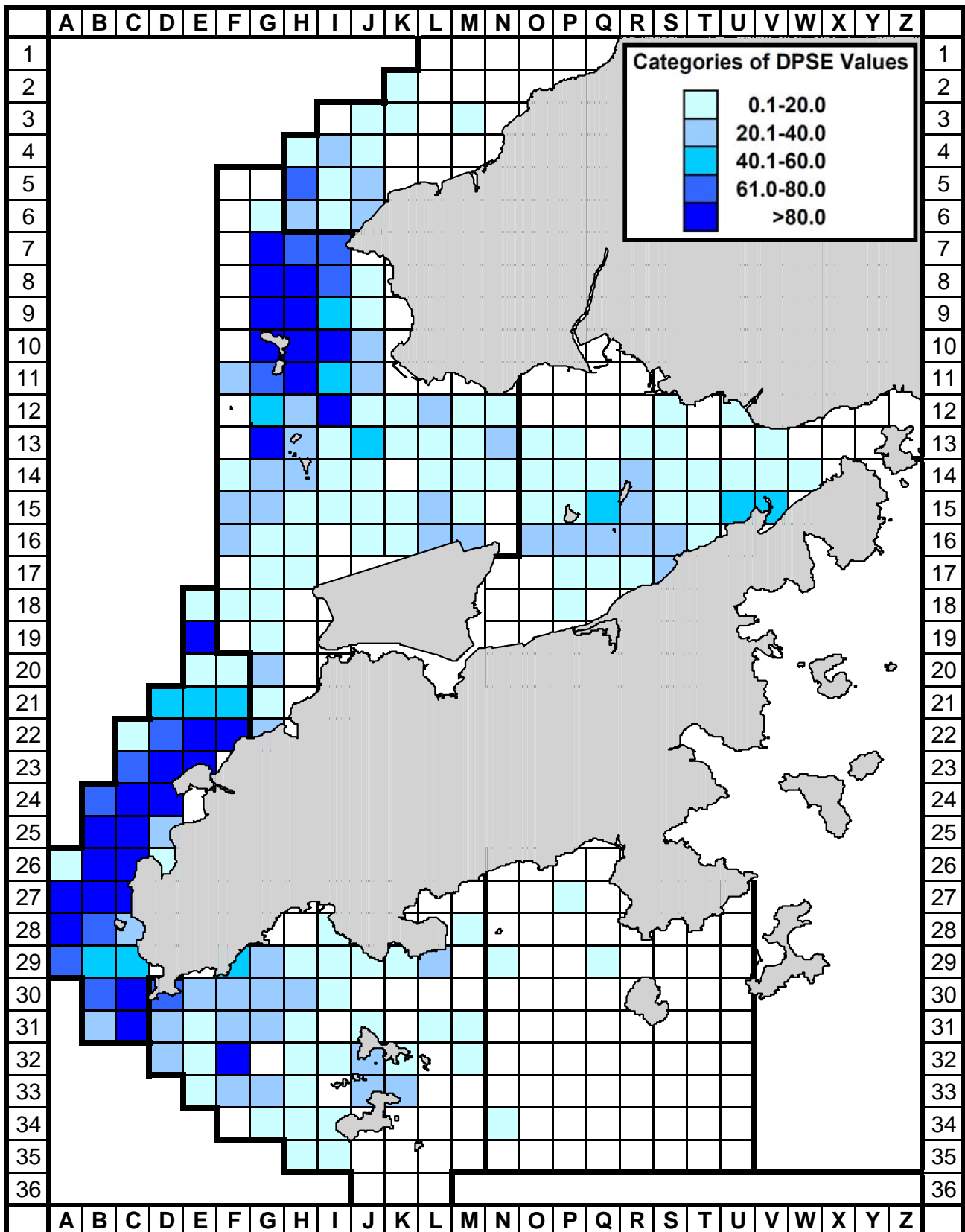


Figure 22. Density of Chinese white dolphins with corrected survey effort per km² in waters around Lantau Island, using data collected during 2006-10 (DPSE = no. of dolphins per 100 units of survey effort)

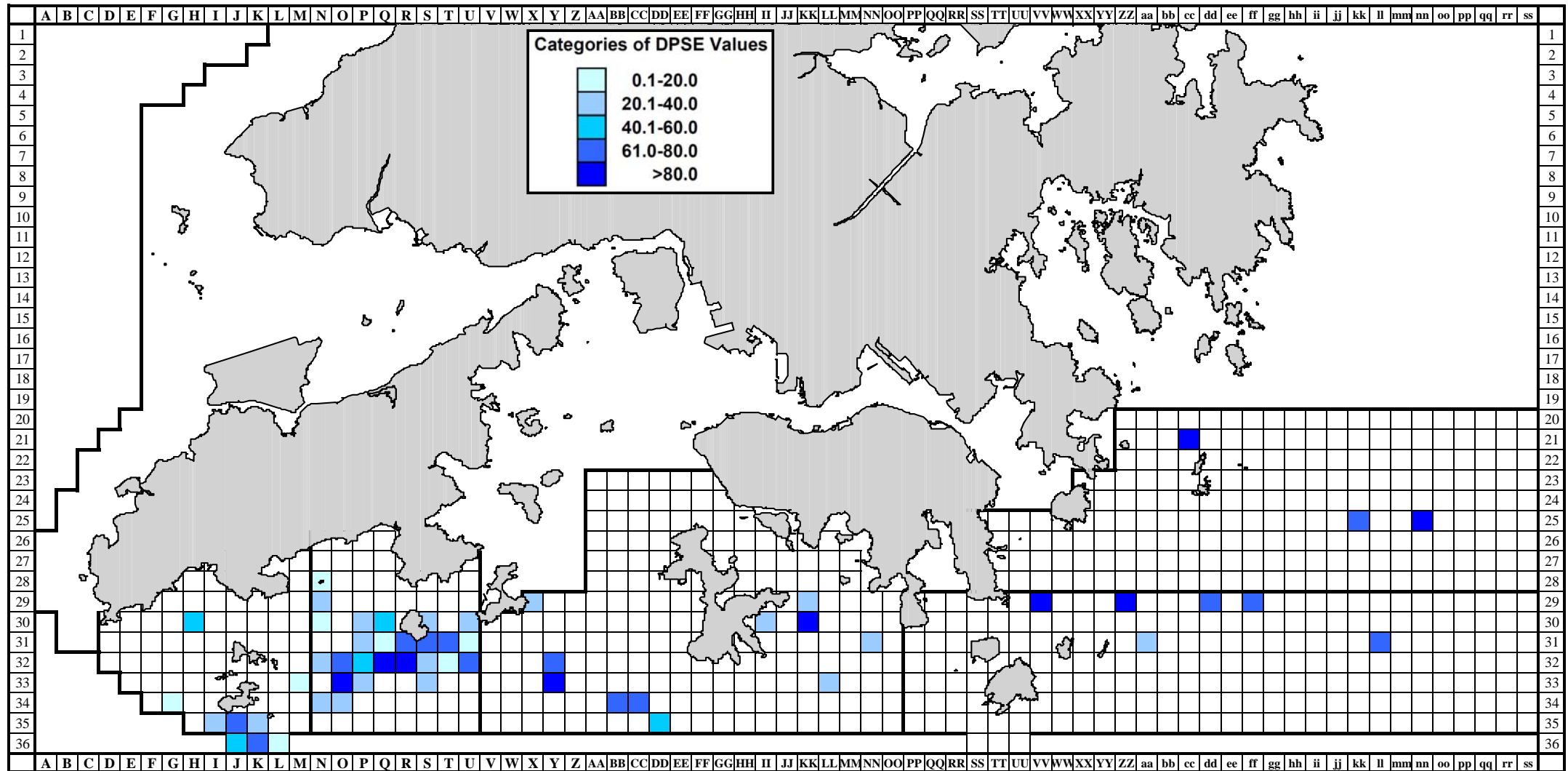


Figure 24. Density of finless porpoises with corrected survey effort per km² in southern waters of Hong Kong, using data collected during 2010 (DPSE = no. of porpoises per 100 units of survey effort)

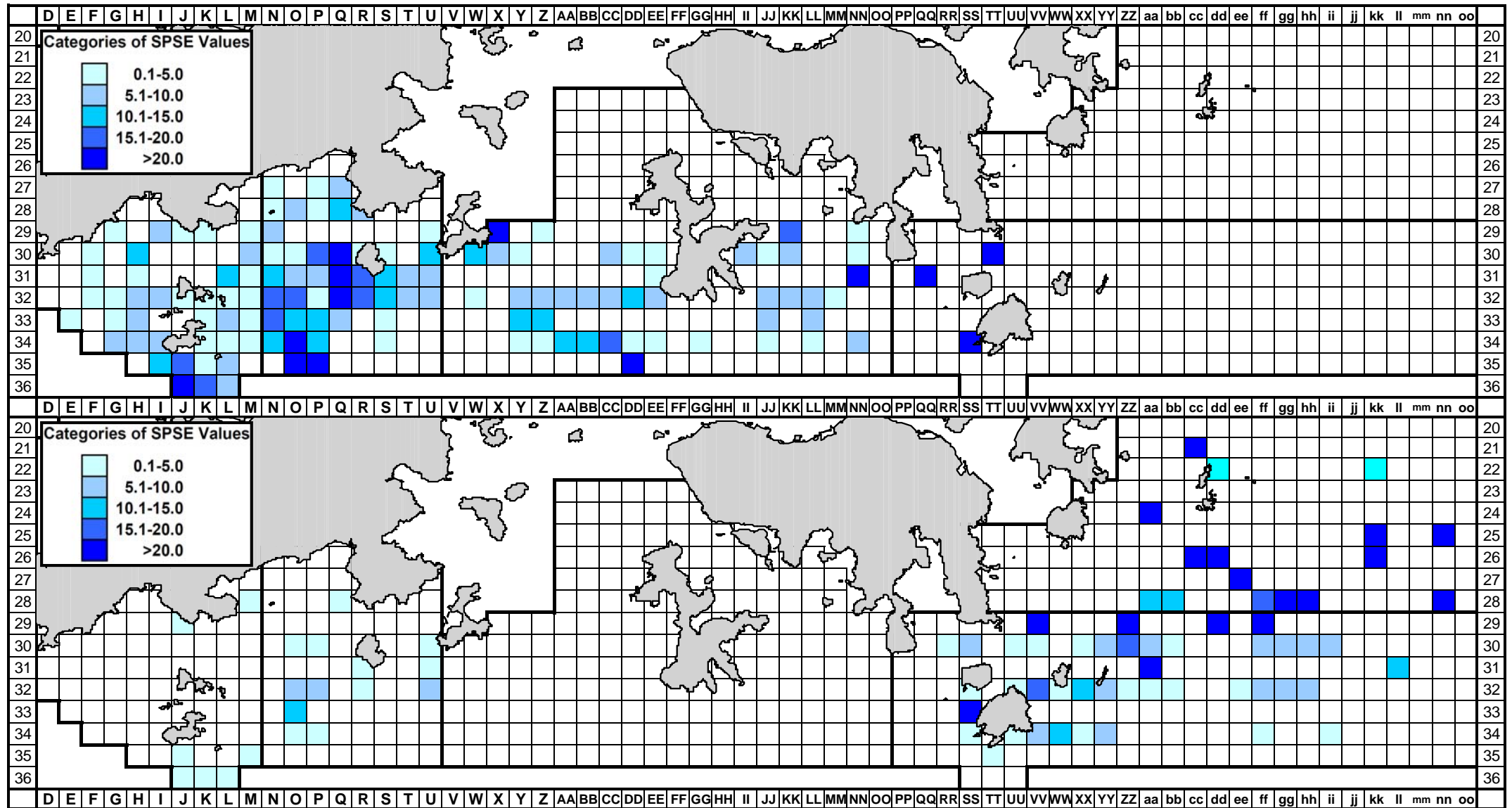


Figure 25. Sighting density of finless porpoises with corrected survey effort per km² in southern waters of Hong Kong during dry season (top) and wet season (bottom), using data collected during 2004-10 (SPSE = no. of on-effort porpoise sightings per 100 units of survey effort)

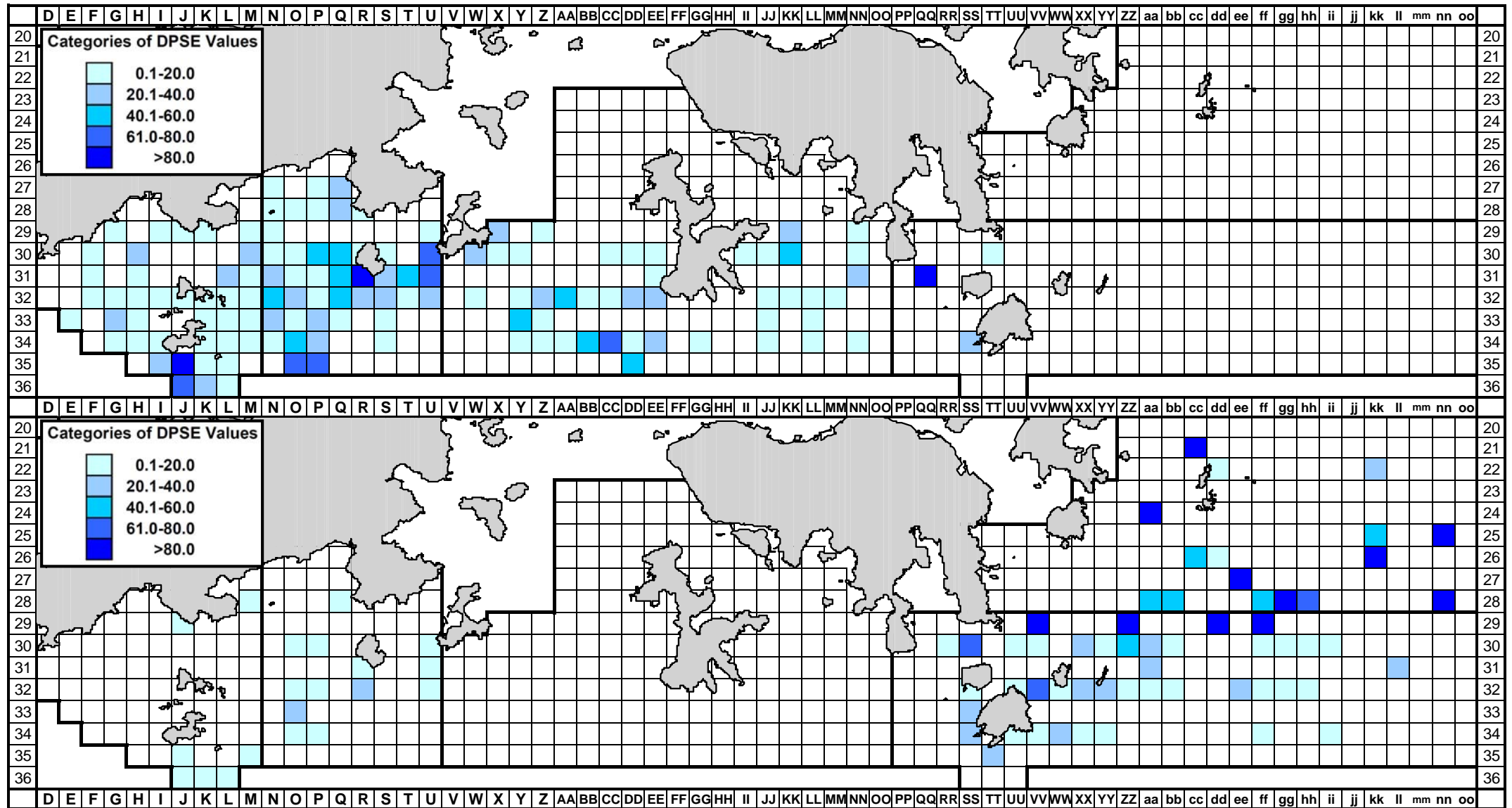


Figure 26. Density of finless porpoises with corrected survey effort per km² in southern waters of Hong Kong during dry season (top) and wet season (bottom), using data collected during 2004-10 (DPSE = no. of porpoises per 100 units of survey effort)

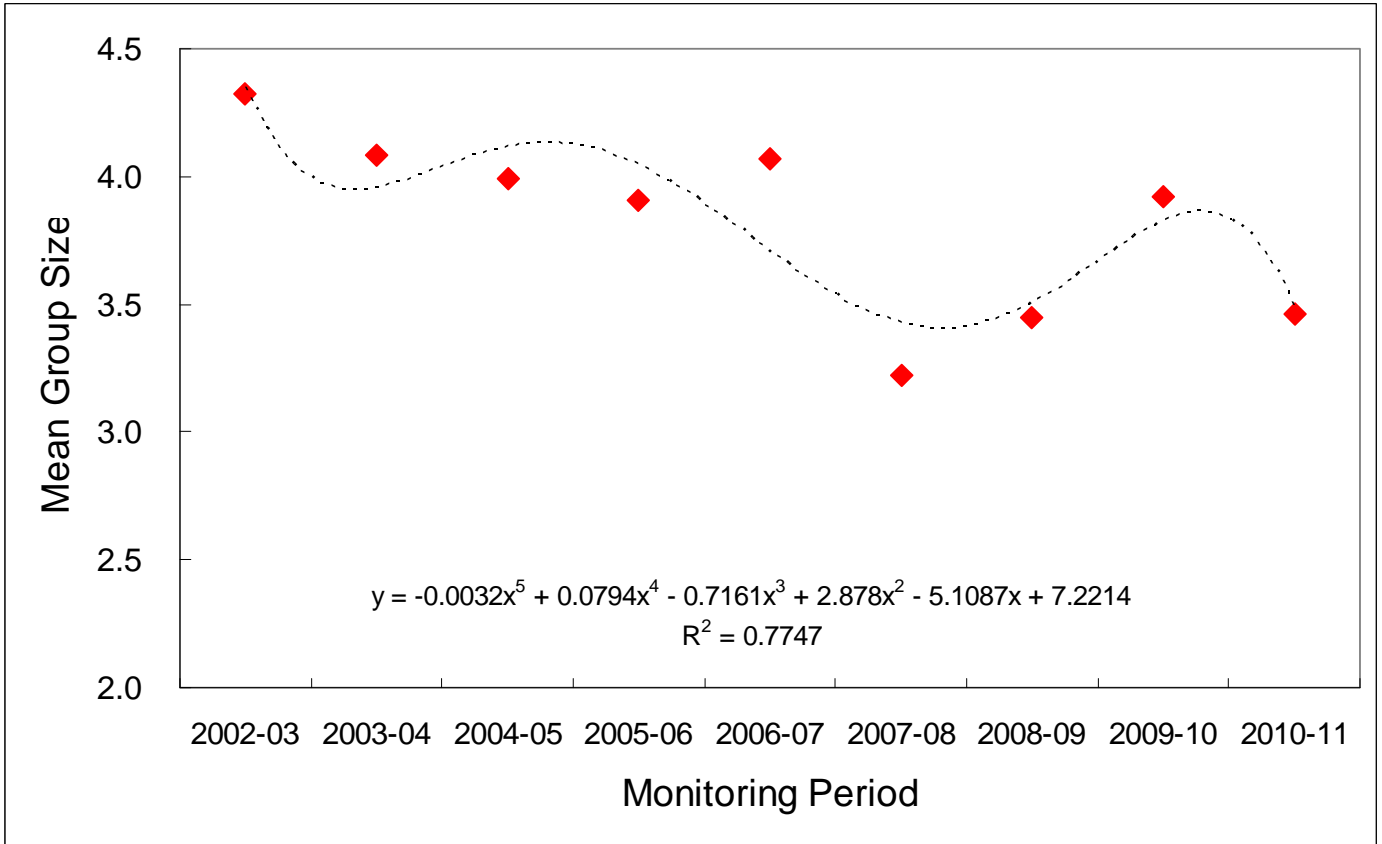


Figure 27. Temporal trend of mean dolphin group size in 2002-11

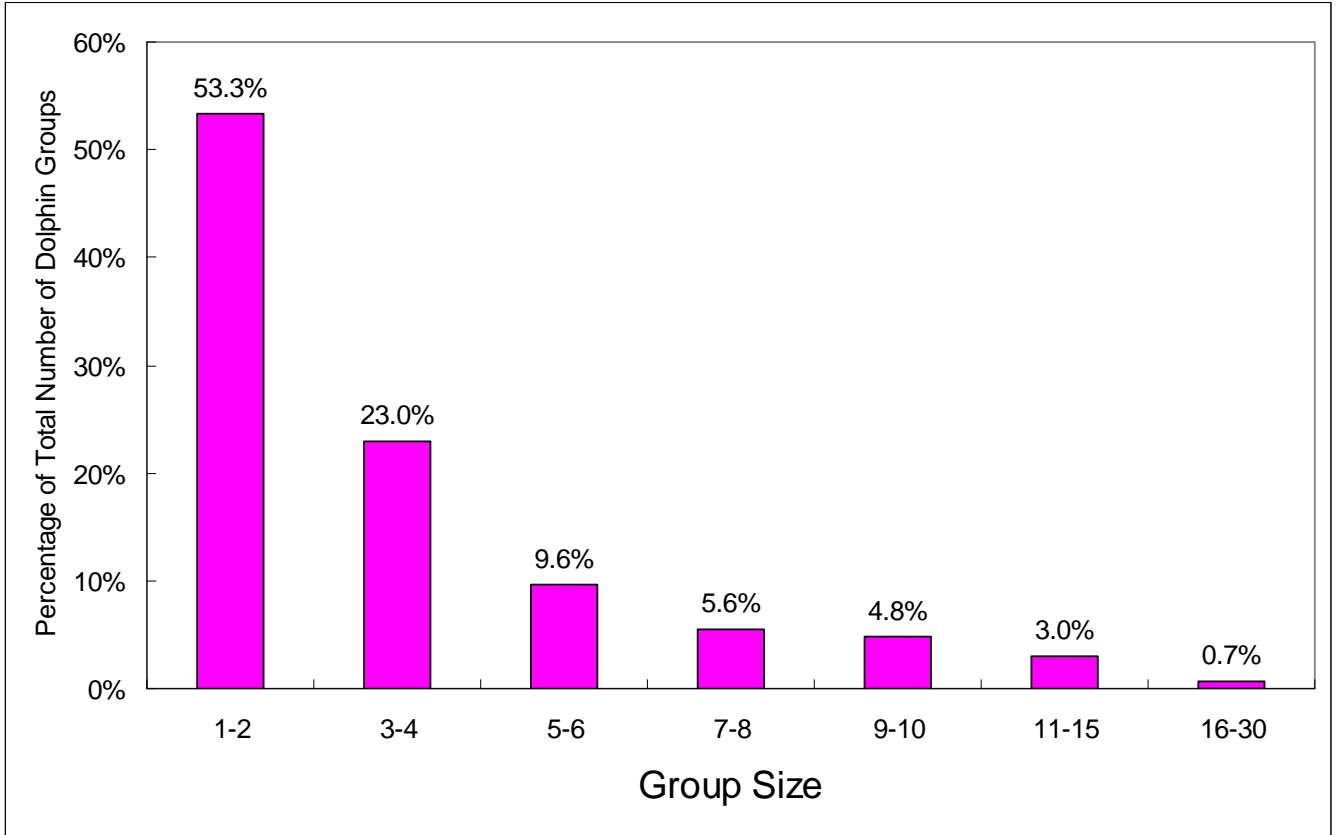


Figure 28. Percentages of different group sizes of Chinese white dolphins in Hong Kong during April 2010 to March 2011

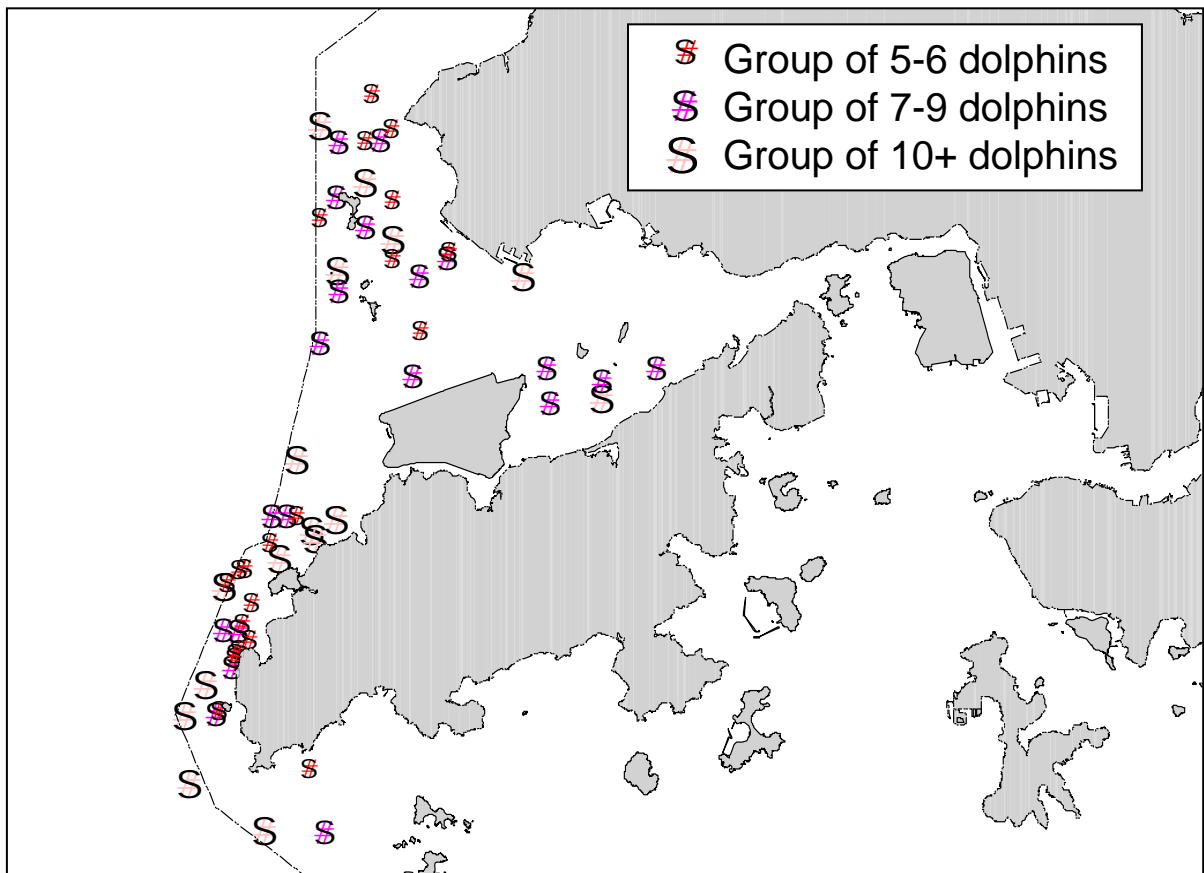
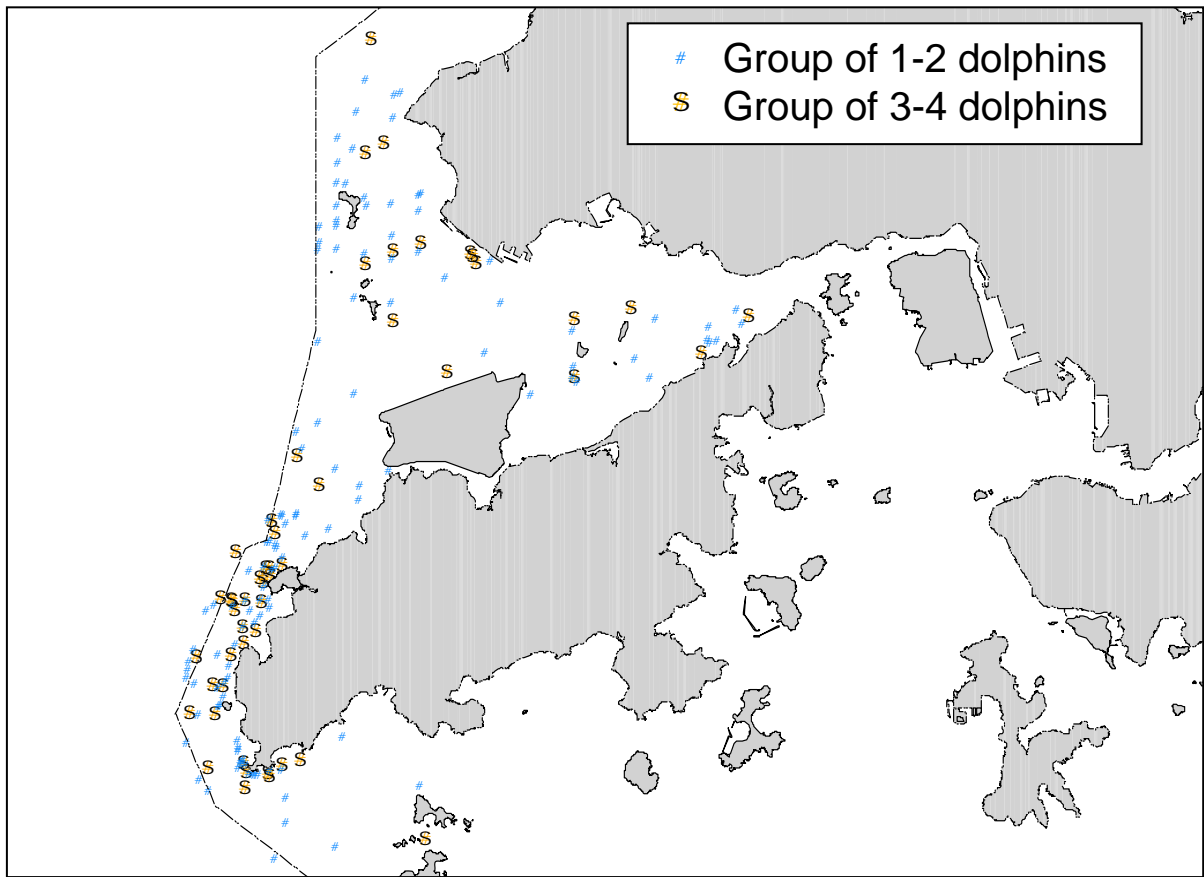


Figure 29. Distribution of Chinese white dolphins with different group sizes (April 2010 – March 2011)

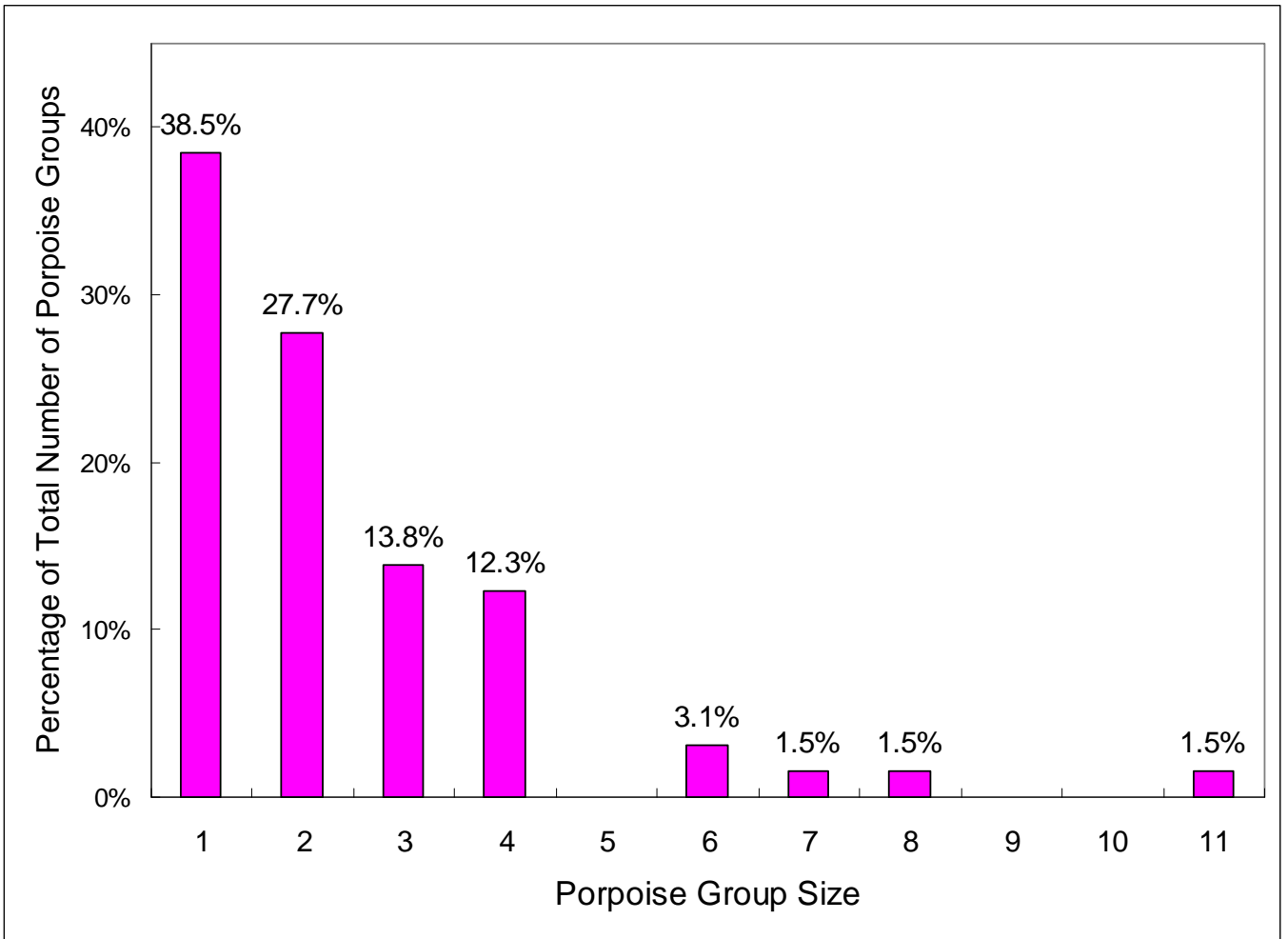


Figure 30. Percentages of different group sizes of finless porpoises in Hong Kong during April 2010 to March 2011

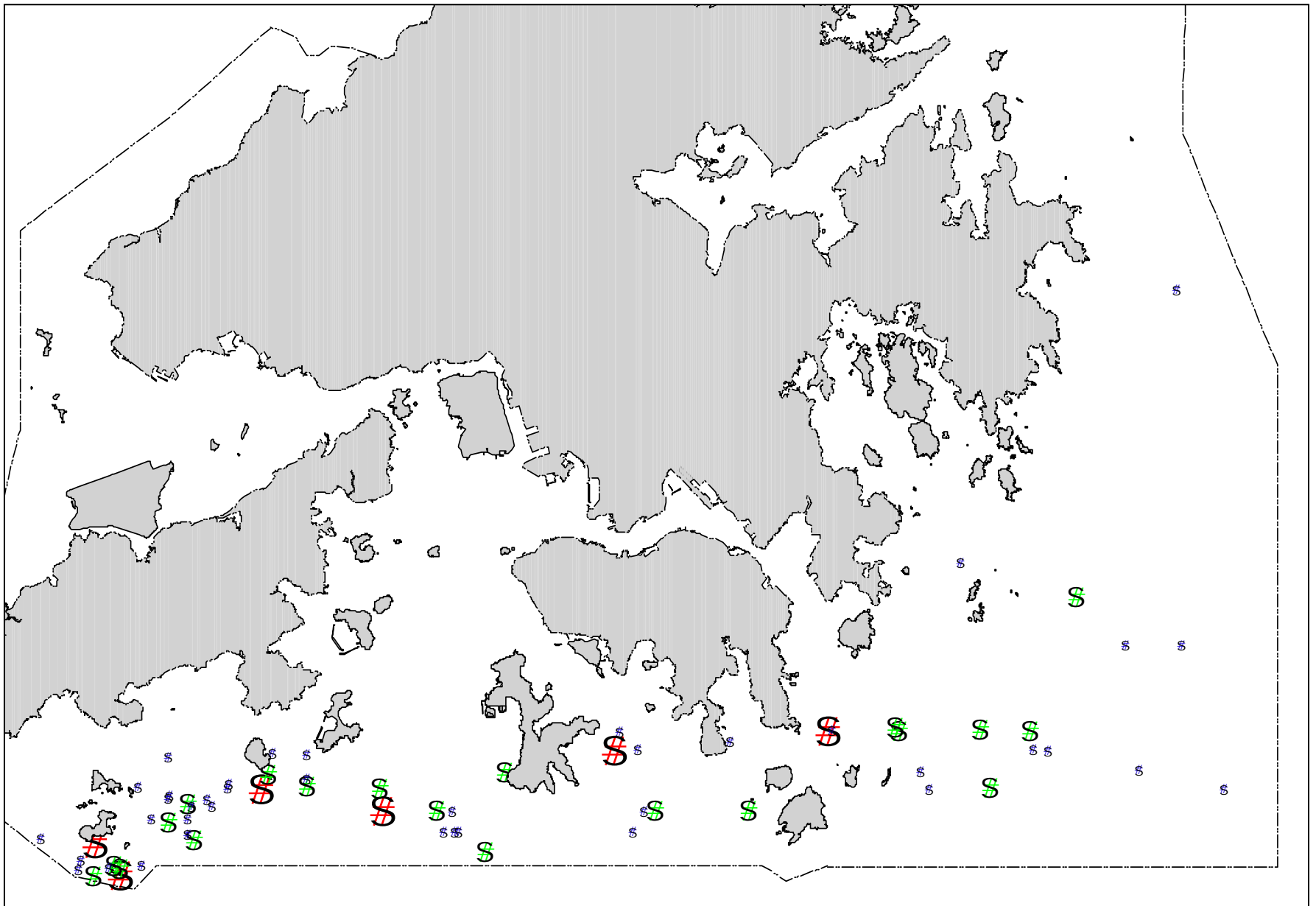


Figure 31. Distribution of finless porpoises with different group sizes during April 2010 – March 2011 (blue dots: group sizes of 1-2; green dots: group sizes of 3-4; red dots: group sizes of 5 or more)

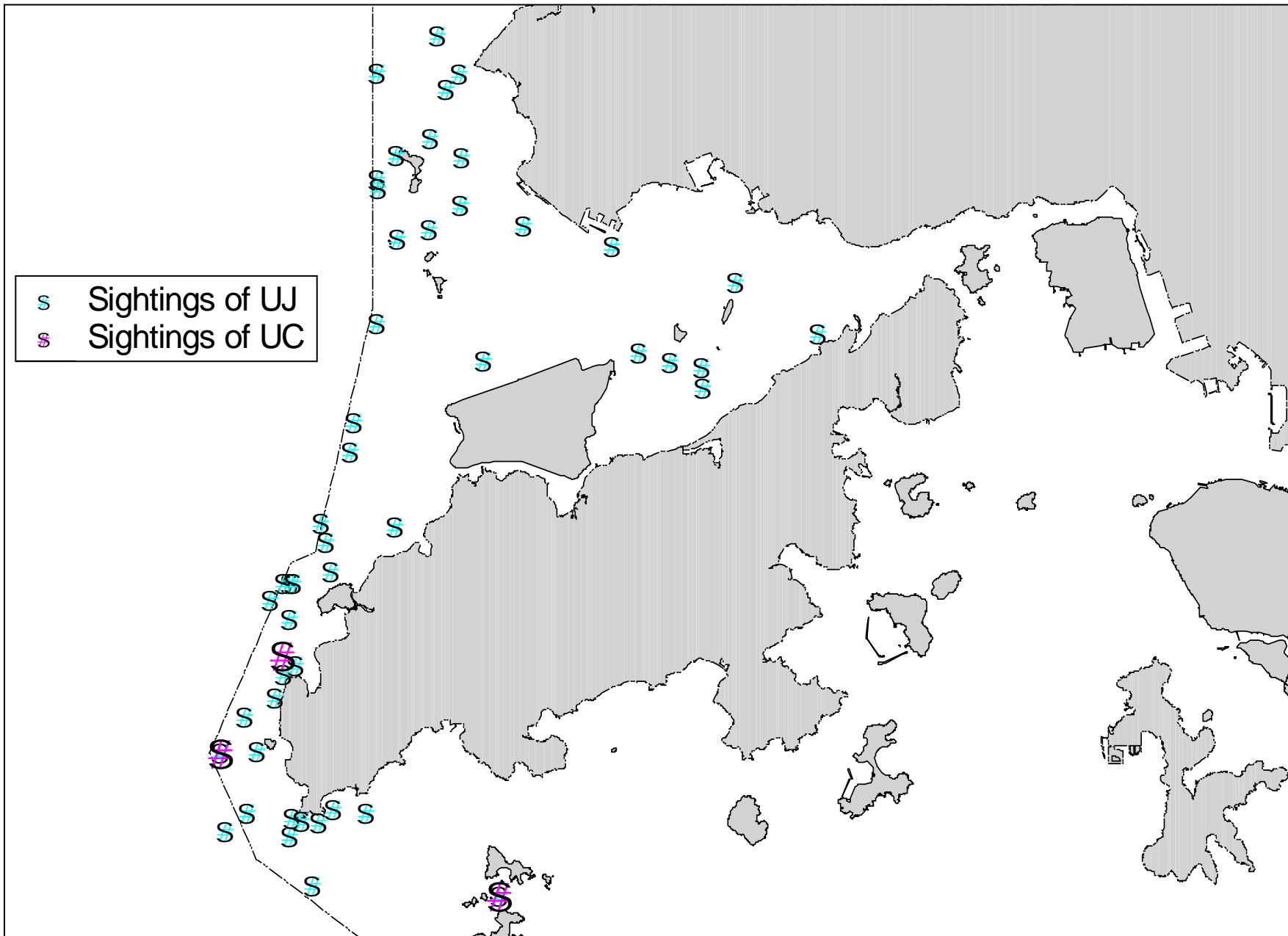


Figure 32. Distribution of Unspotted Calves (UC) & Unspotted Juveniles (UJ) (April 2010 – March 2011)

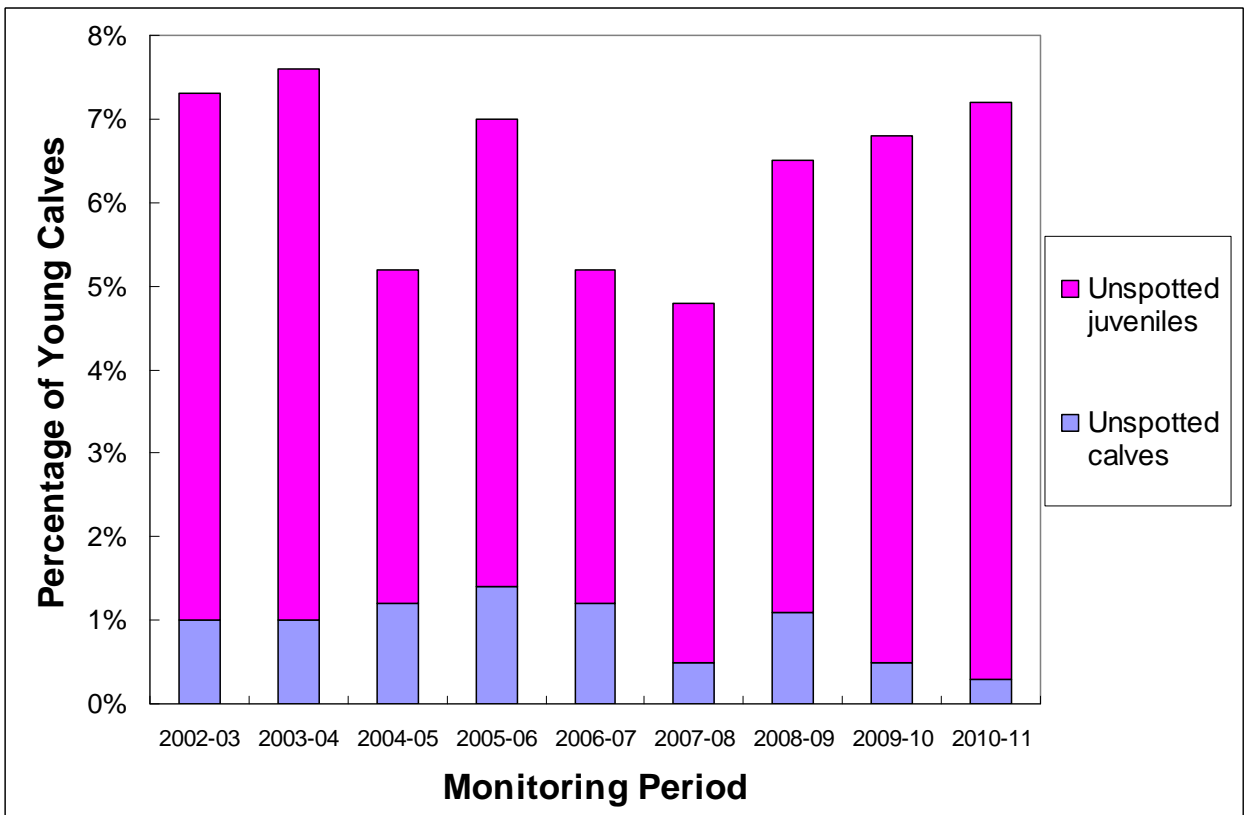


Figure 33a. Percentages of young calves (including unspotted calves and unspotted juveniles) among dolphin groups in Hong Kong during 2002-11

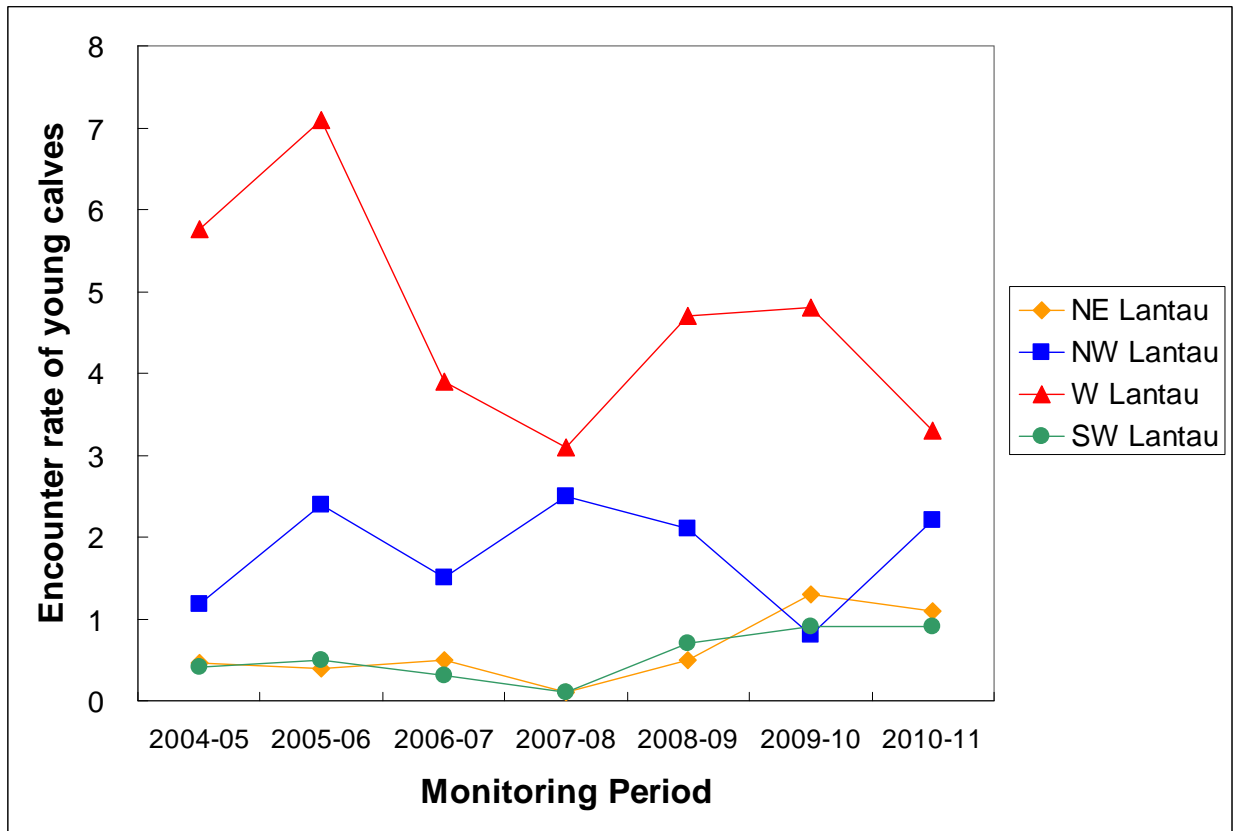


Figure 33b. Temporal trends of encounter rates of young calves (including unspotted calves and unspotted juveniles) in 2004-11

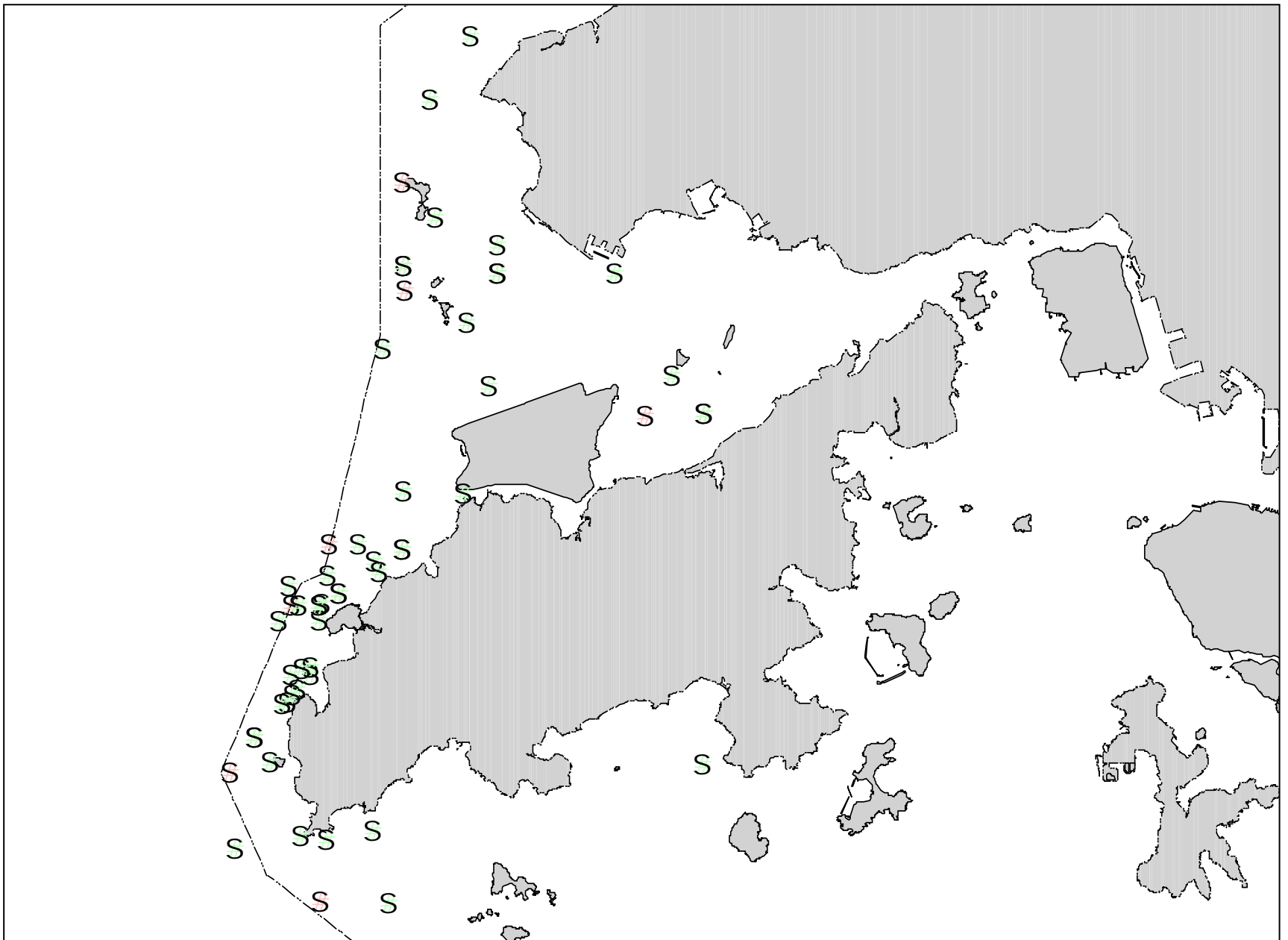


Figure 34. Distribution of Chinese white dolphins engaged in feeding (green dots) and socializing (pink dots) activities (April 2010 – March 2011)

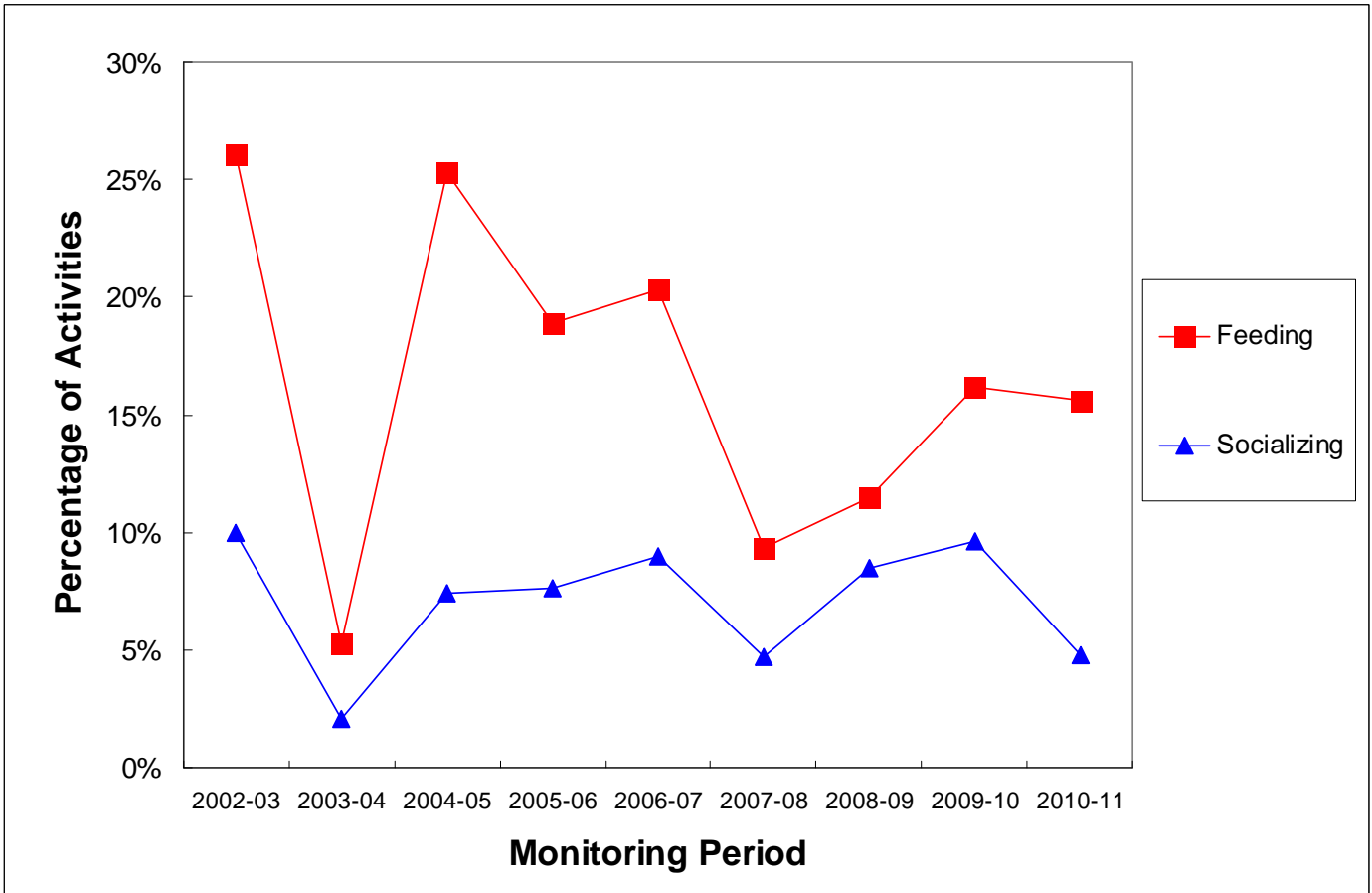


Figure 35. Percentages of feeding and socializing activities among all dolphin groups sighted in Hong Kong during 2002-11

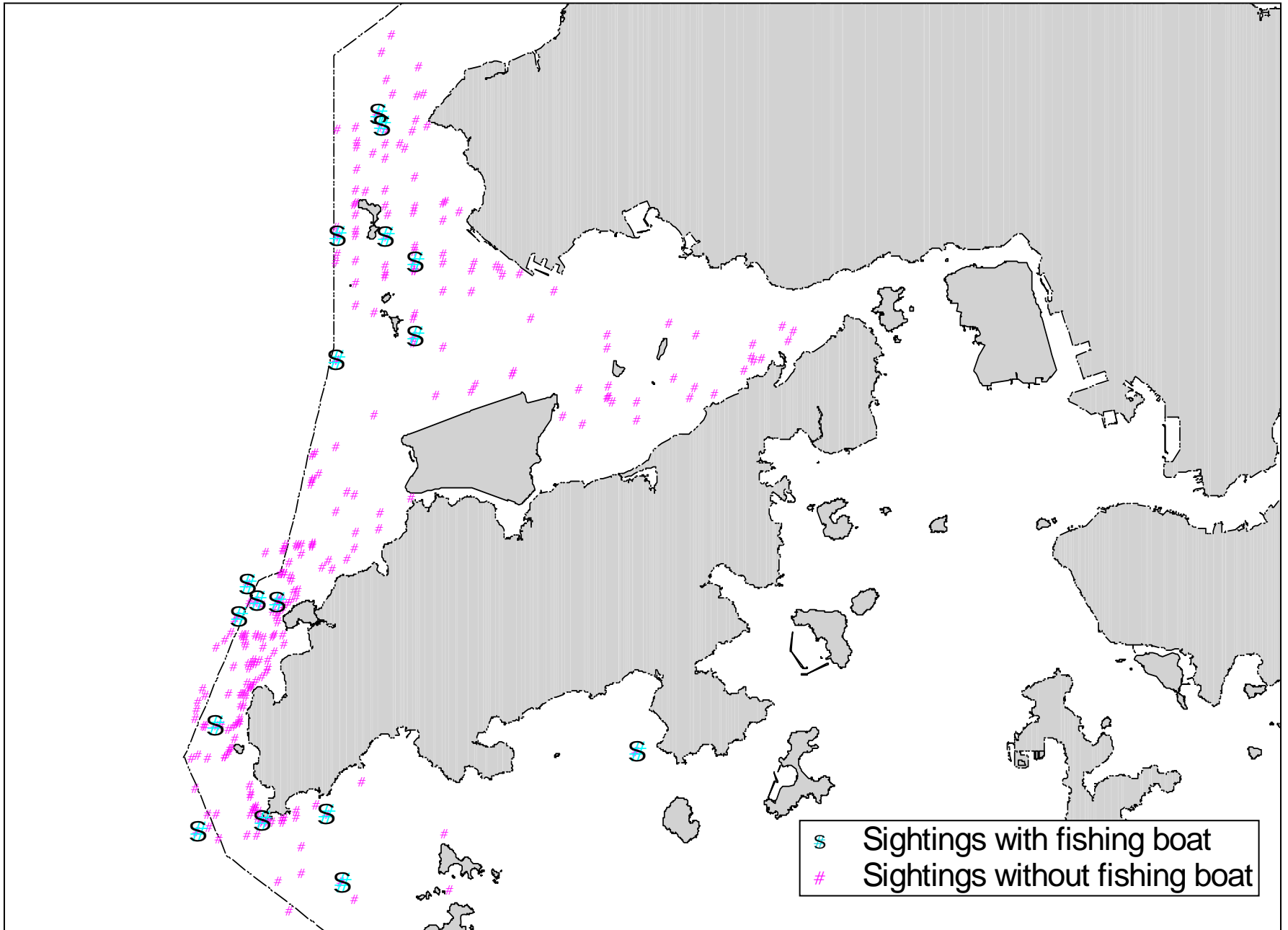
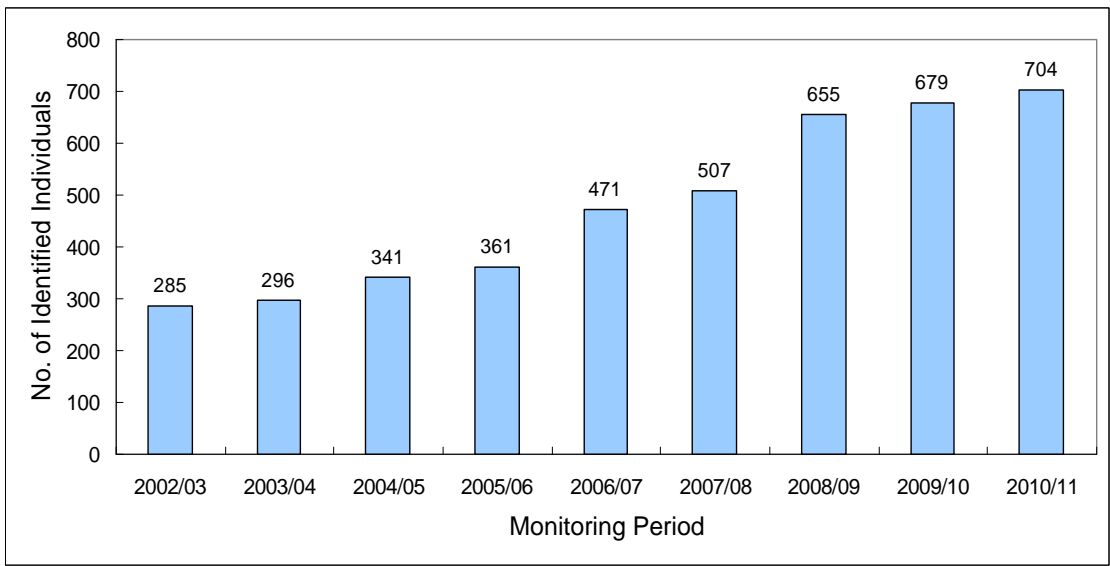
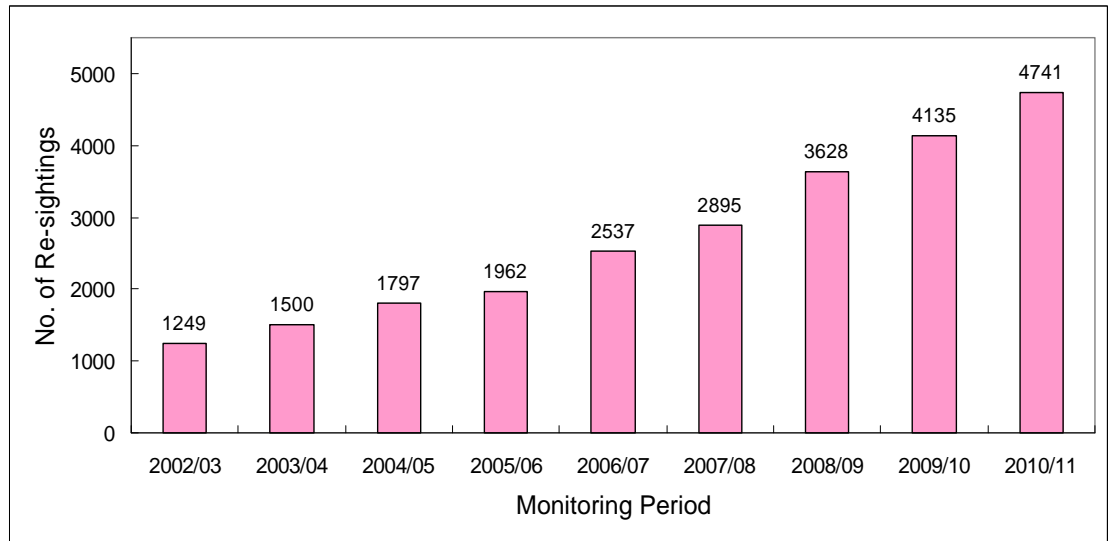


Figure 36. Distribution of dolphin sightings associated with and without fishing boats (April 2010 – March 2011)

(a)



(b)



(c)

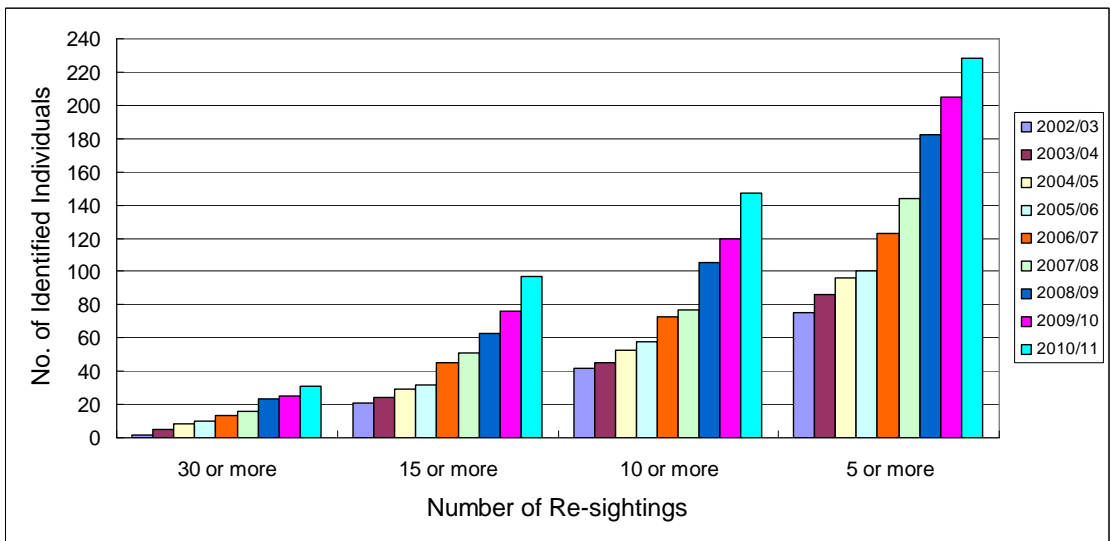


Figure 37. Temporal trends of (a) total number of identified individuals; (b) total number of re-sightings made; and (c) number of identified individuals within several categories of number of re-sightings in the past nine monitoring periods since 2002

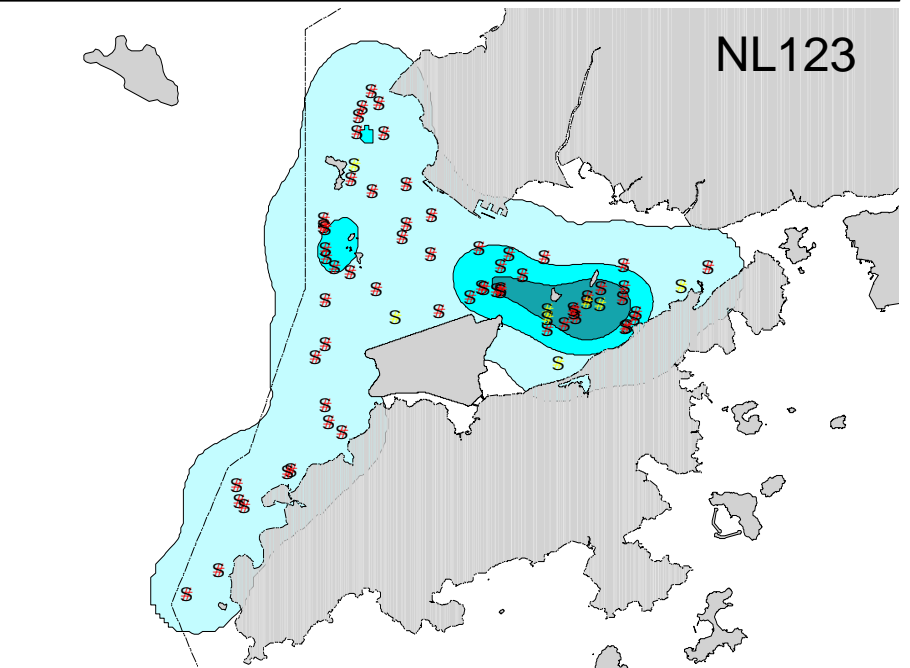
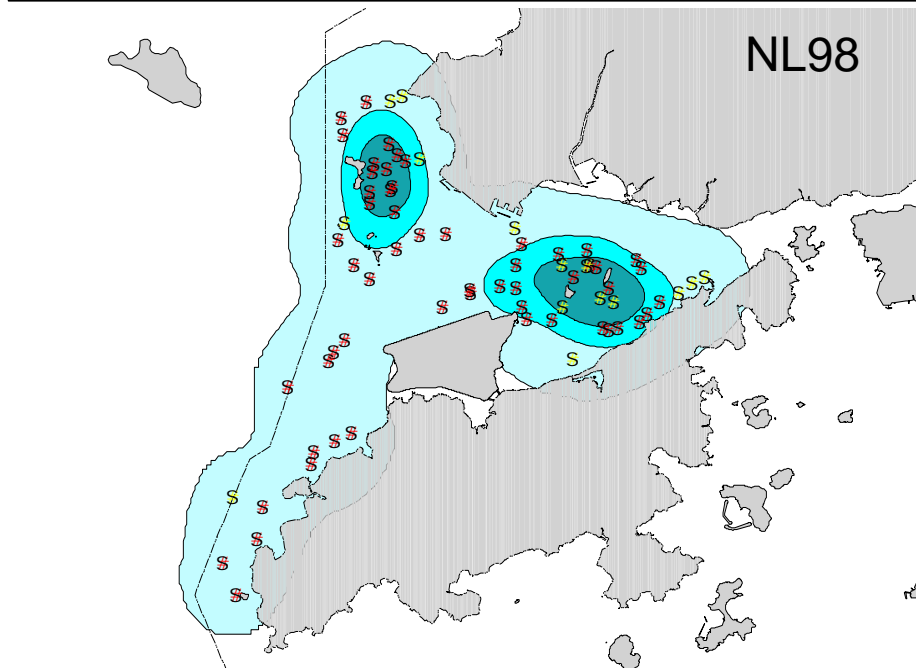
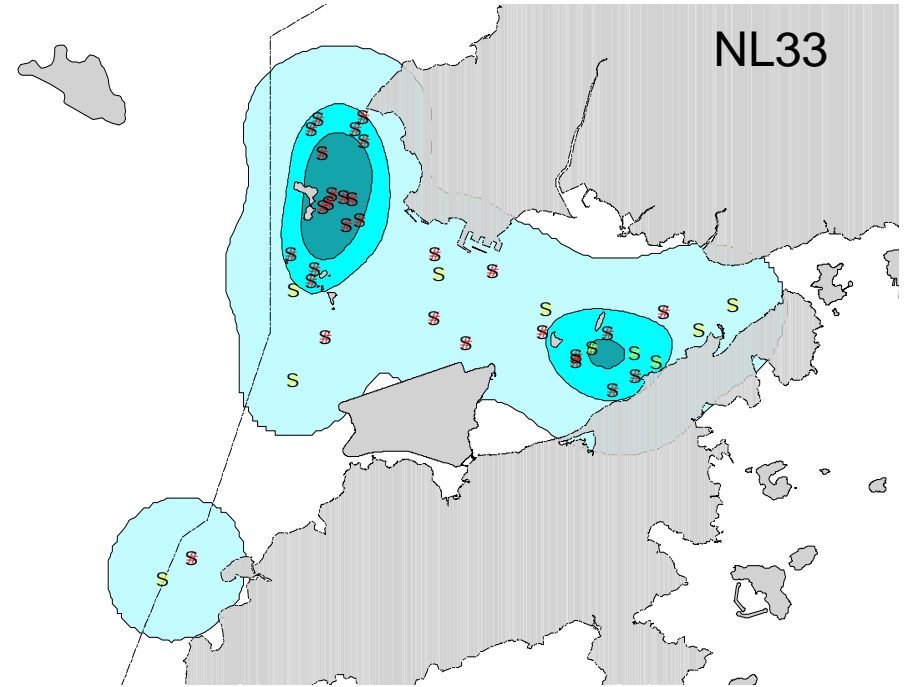
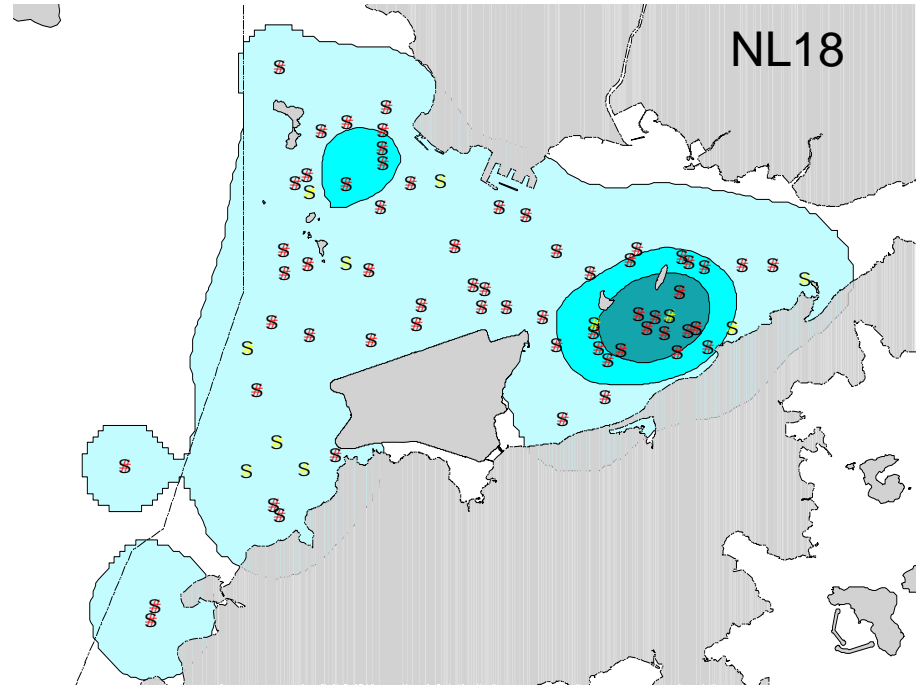


Figure 38. Ranging patterns of four individuals with their core areas centered around the Brothers Islands

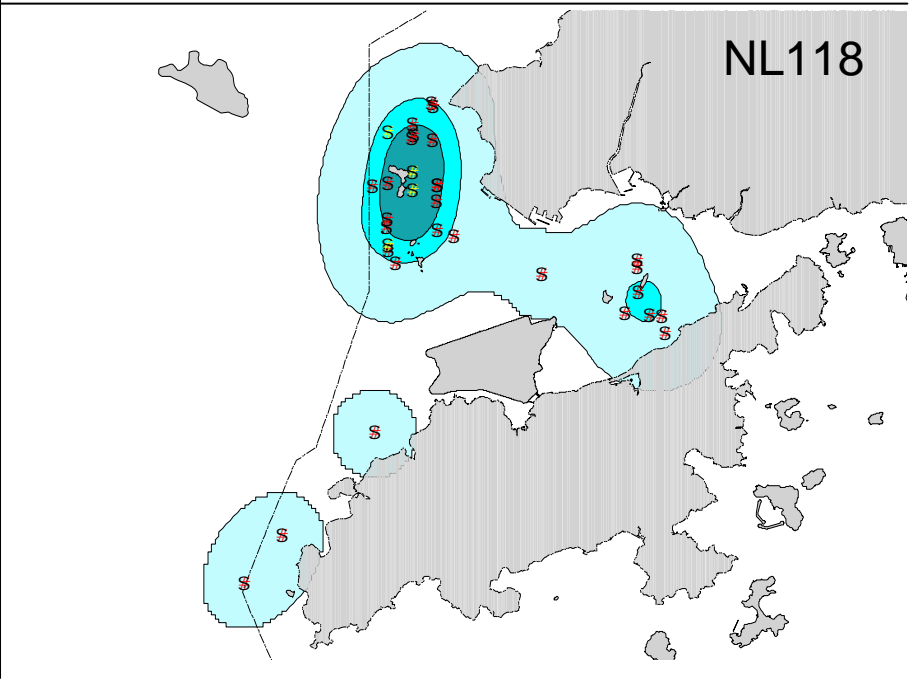
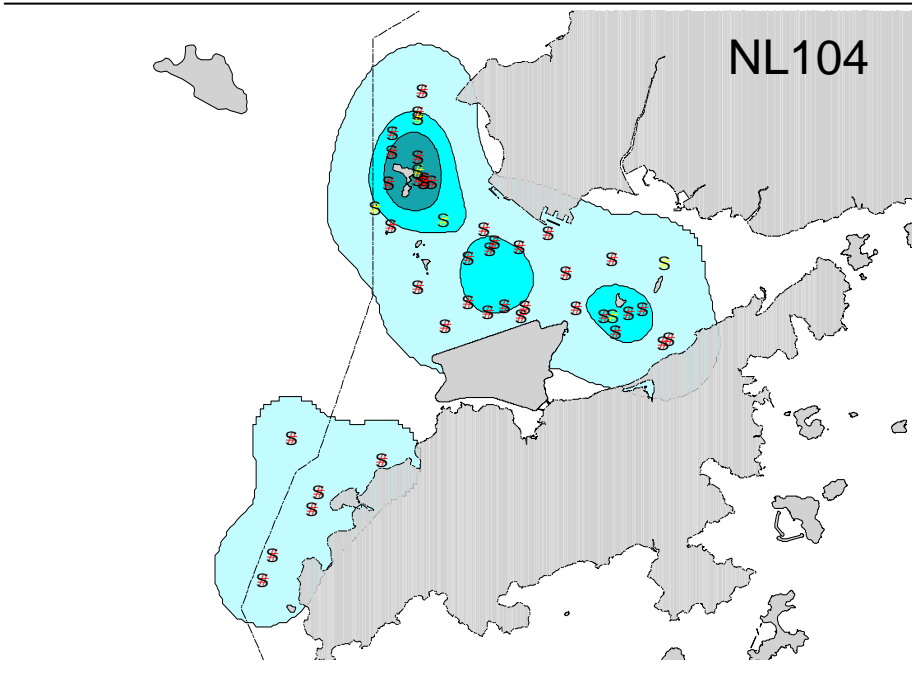
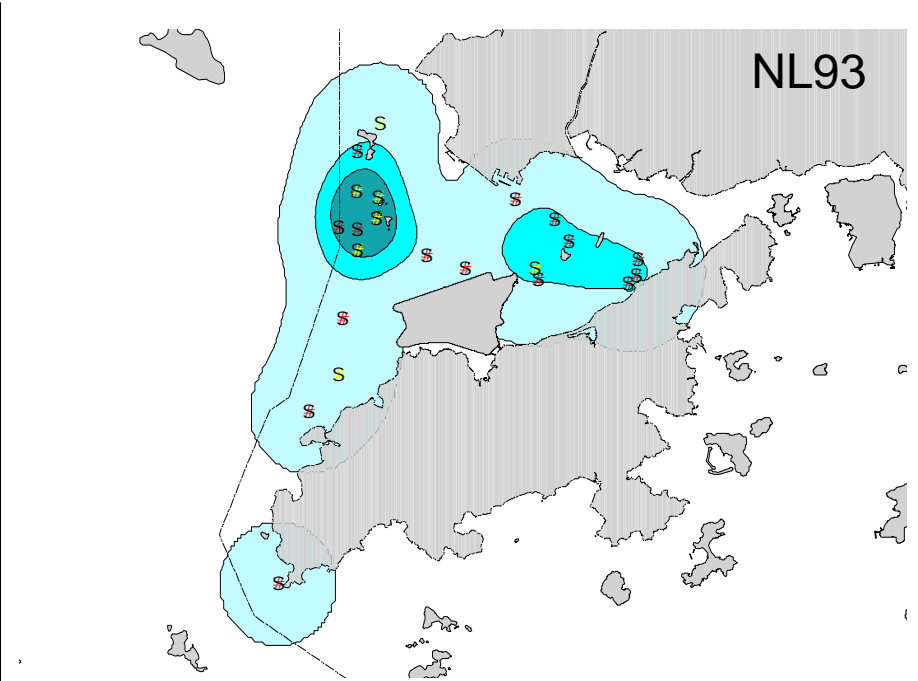
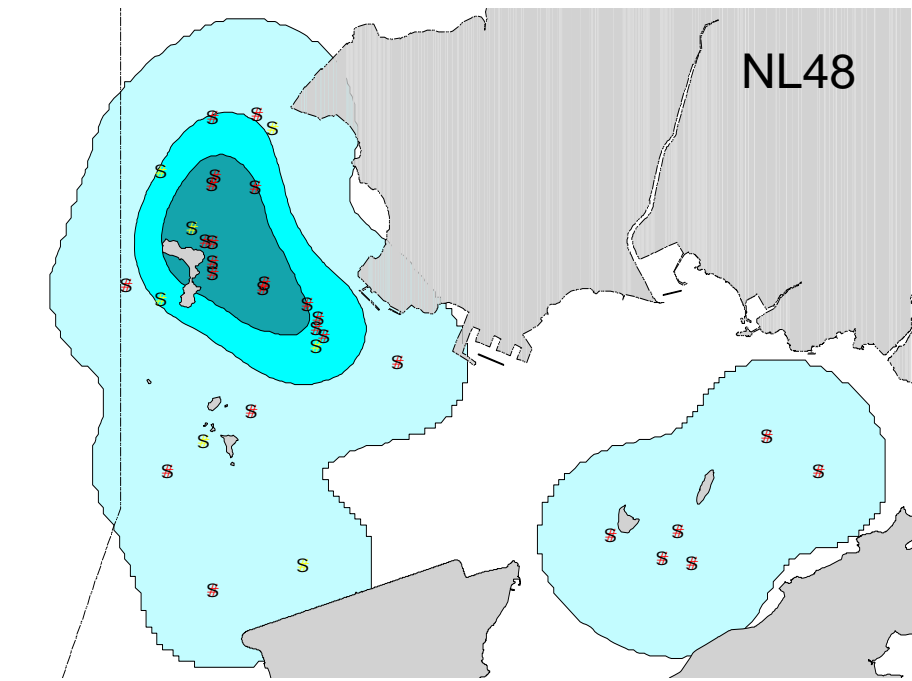
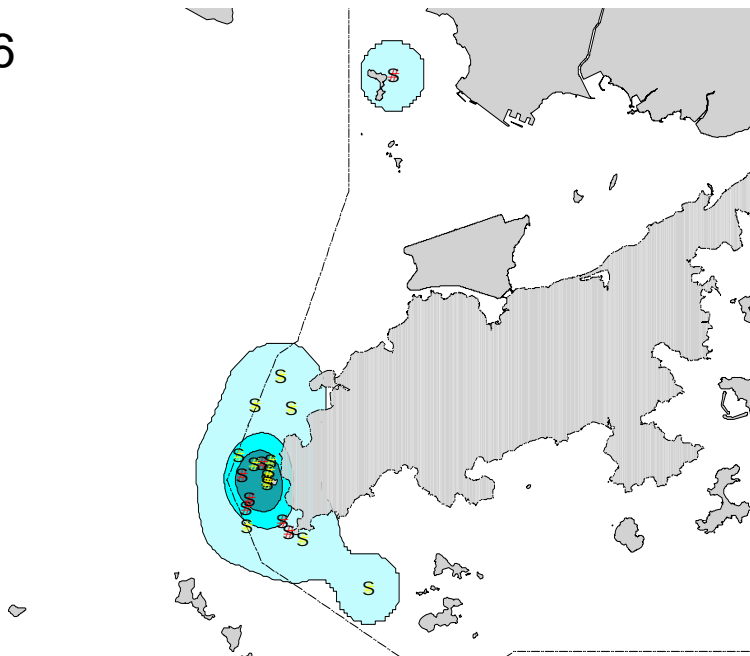
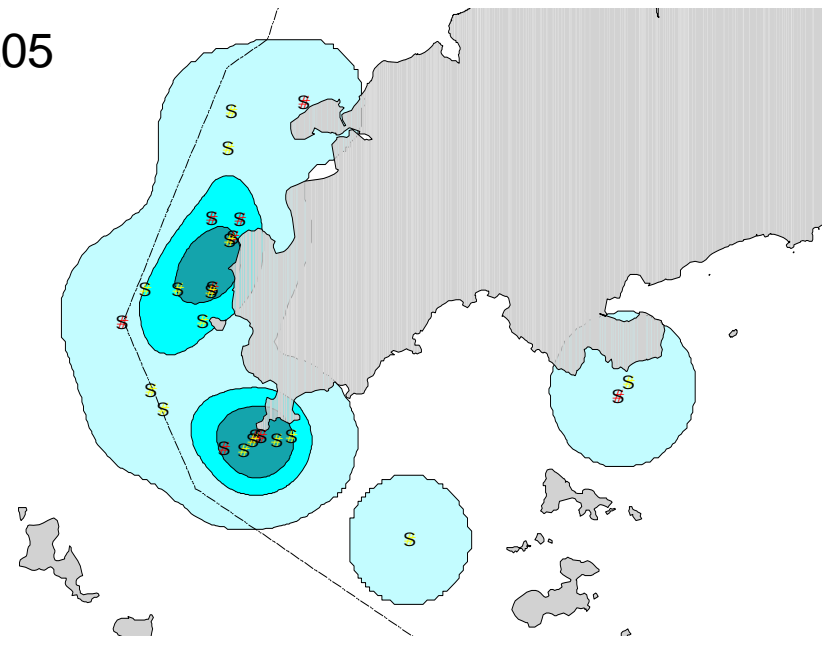


Figure 39. Ranging patterns of four individuals with their core areas centered around SC & LKC Marine Park

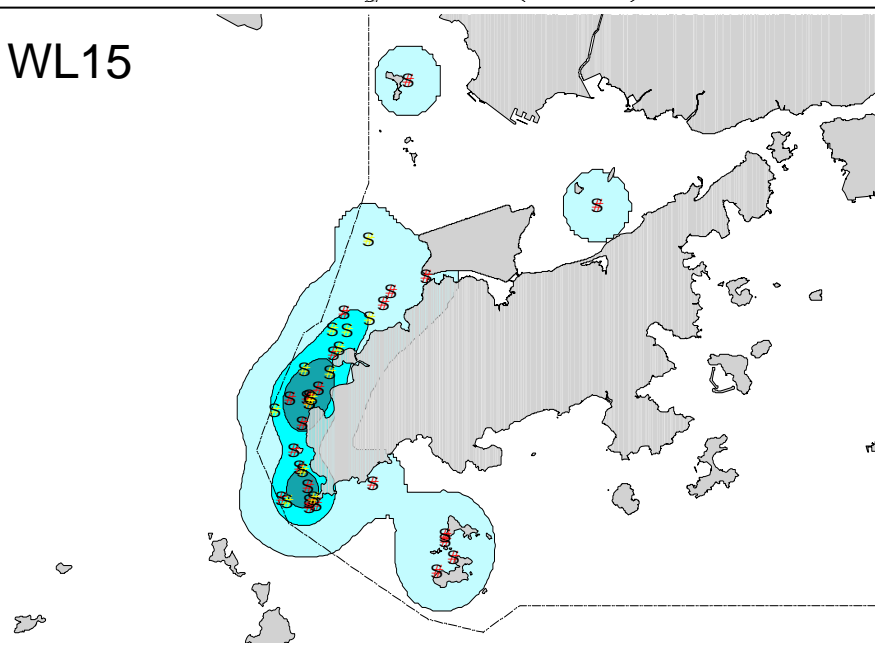
NL206



SL05



WL15



WL109

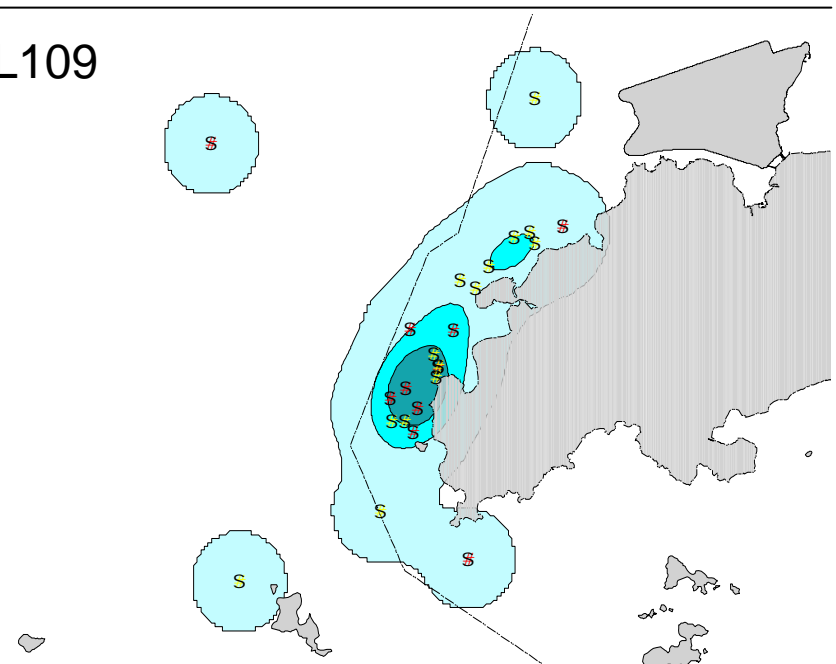


Figure 40. Ranging patterns of four individuals with their core areas centered along west coast of Lantau

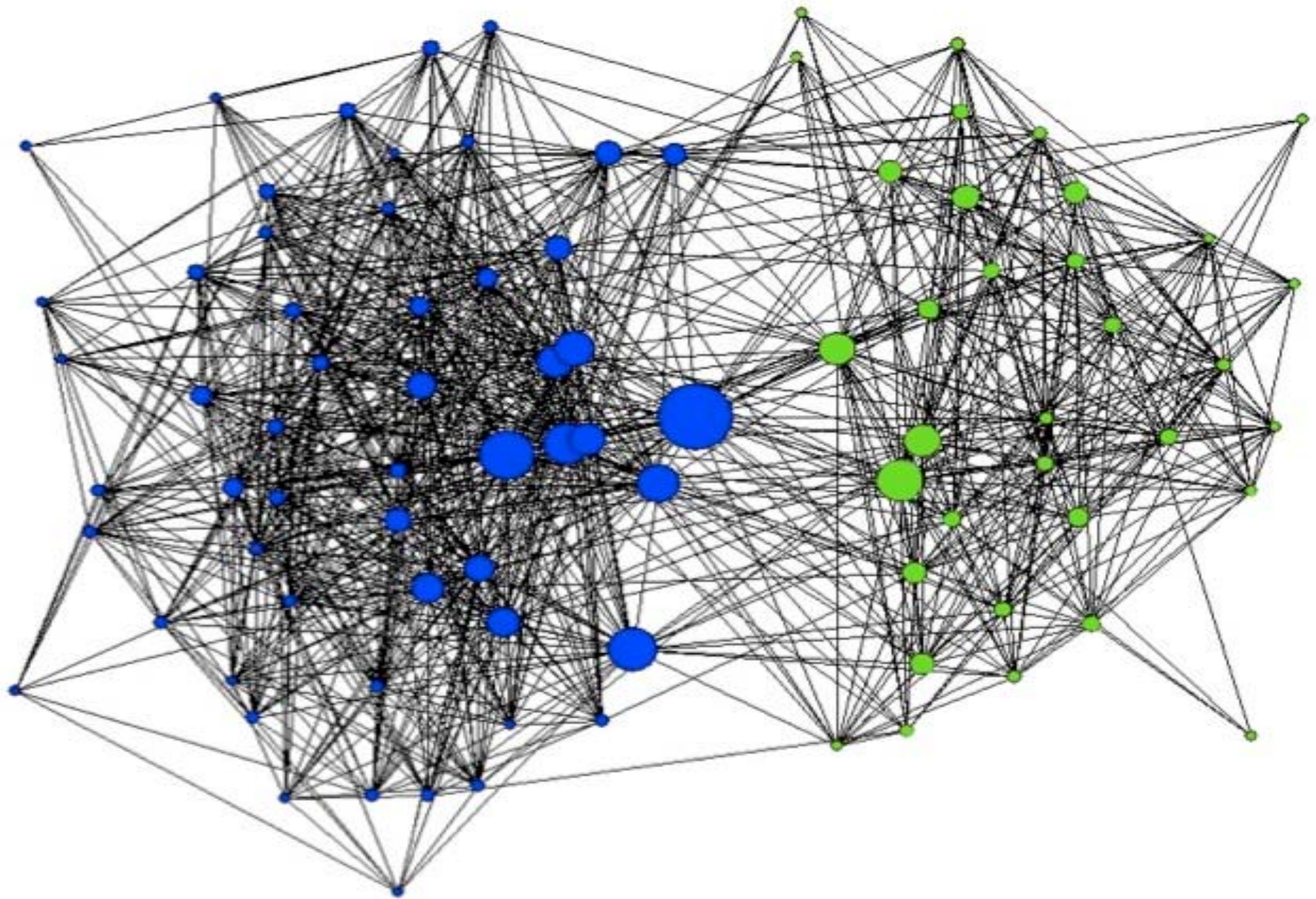


Figure 41. A sociogram of the 88 dolphins included in analyses of social structure. Nodes are individual dolphins (size proportional to network reach) and edge lengths are proportional to association indices. Colours indicate social clusters assessed with Newman's (2006) eigenvector method (blue: northern cluster, green: western cluster).

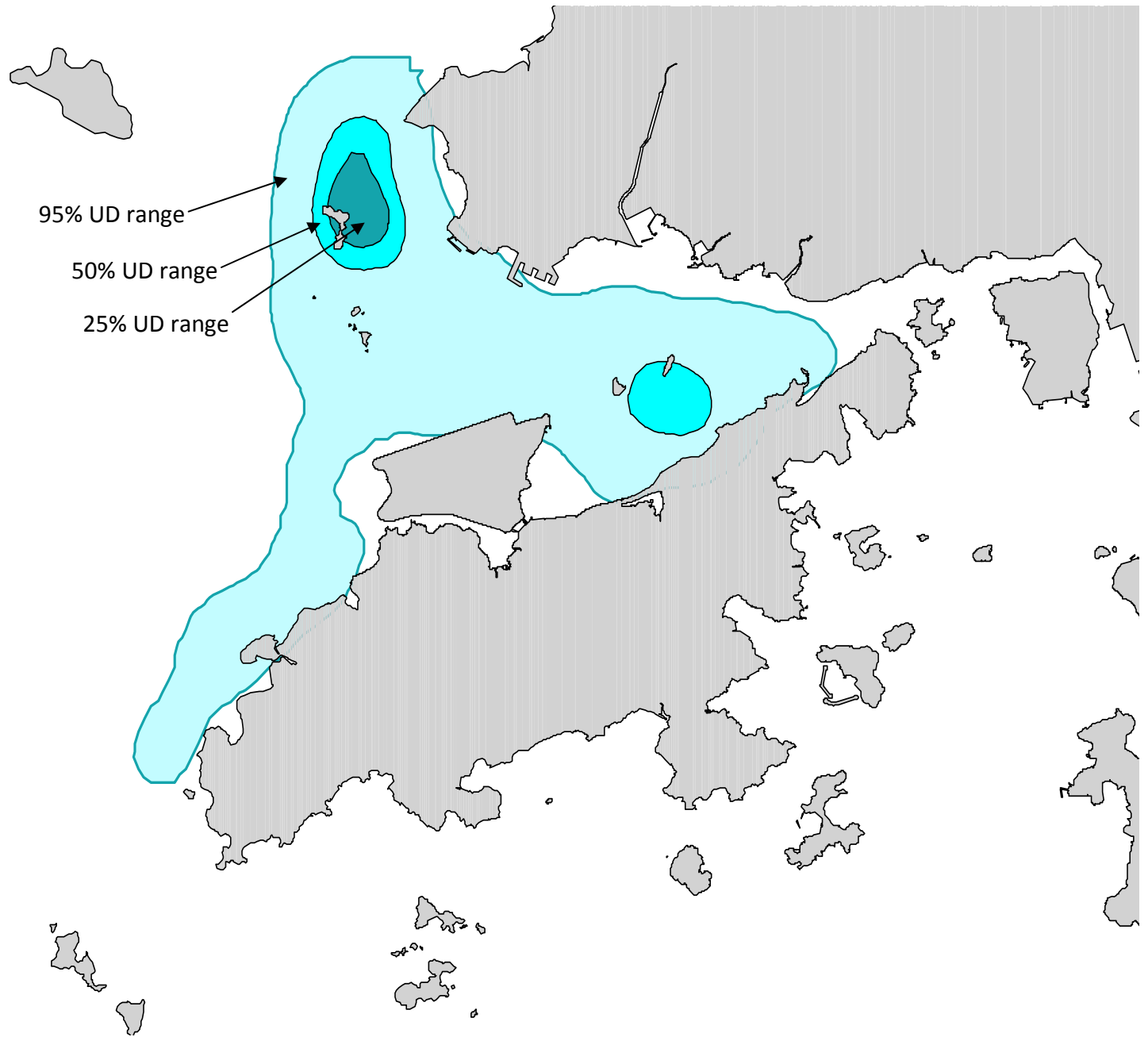


Figure 42. 95%, 50%, and 25% utilization densities for dolphins categorized in the northern social cluster.

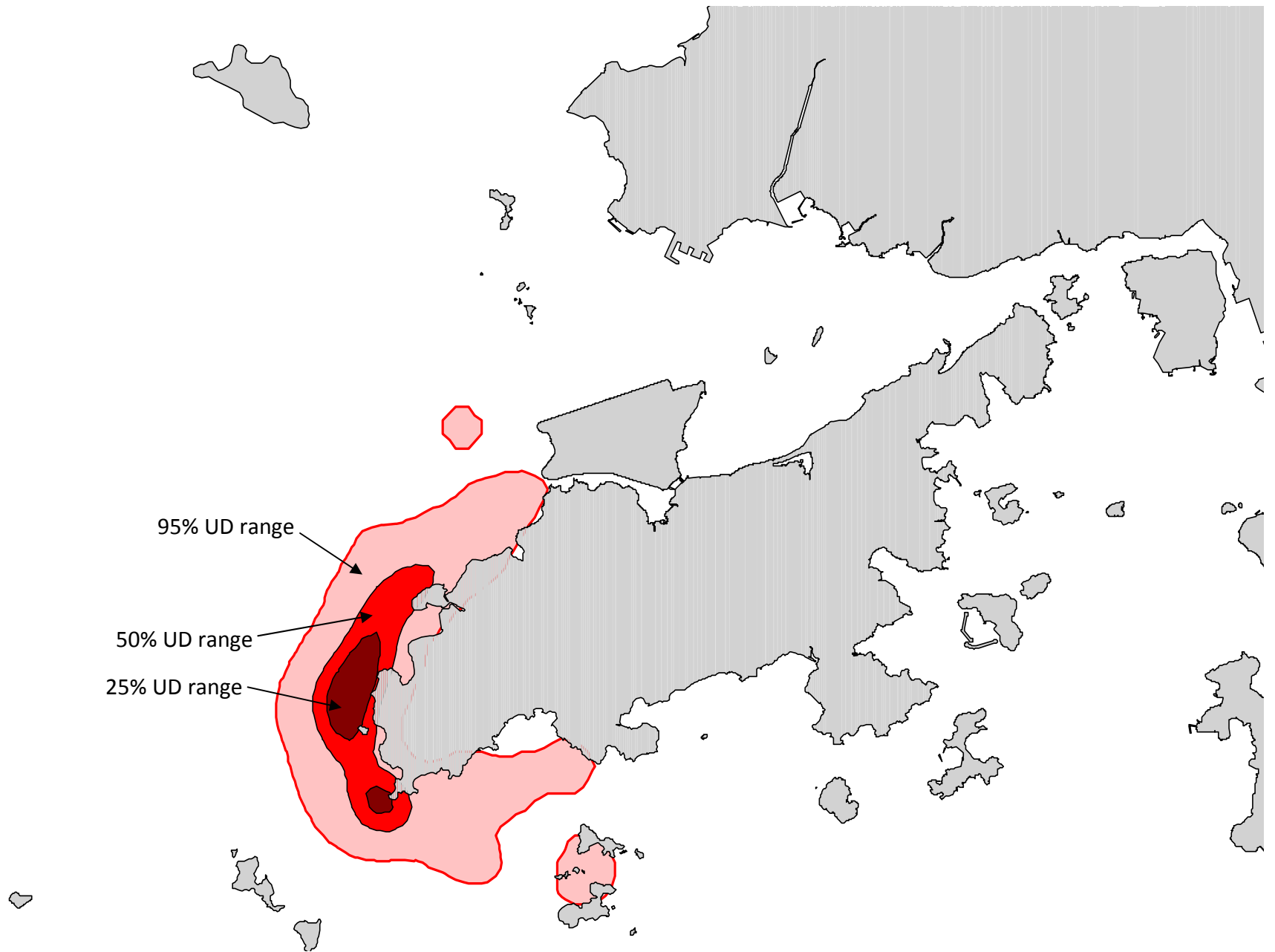


Figure 43. 95%, 50%, and 25% utilization densities for dolphins categorized in the western social cluster.

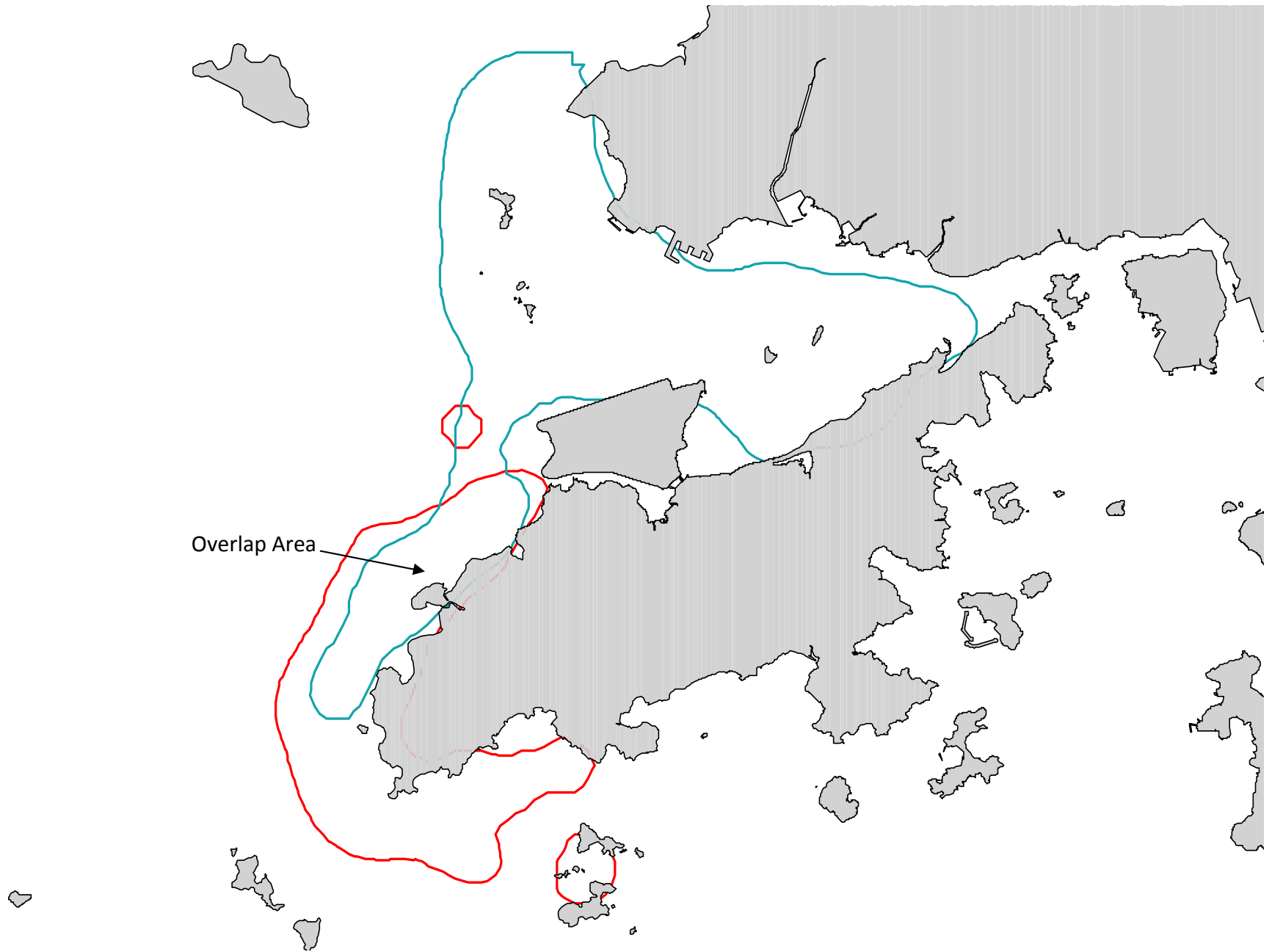


Figure 44. Overlap of the 95% utilization densities for each social cluster.

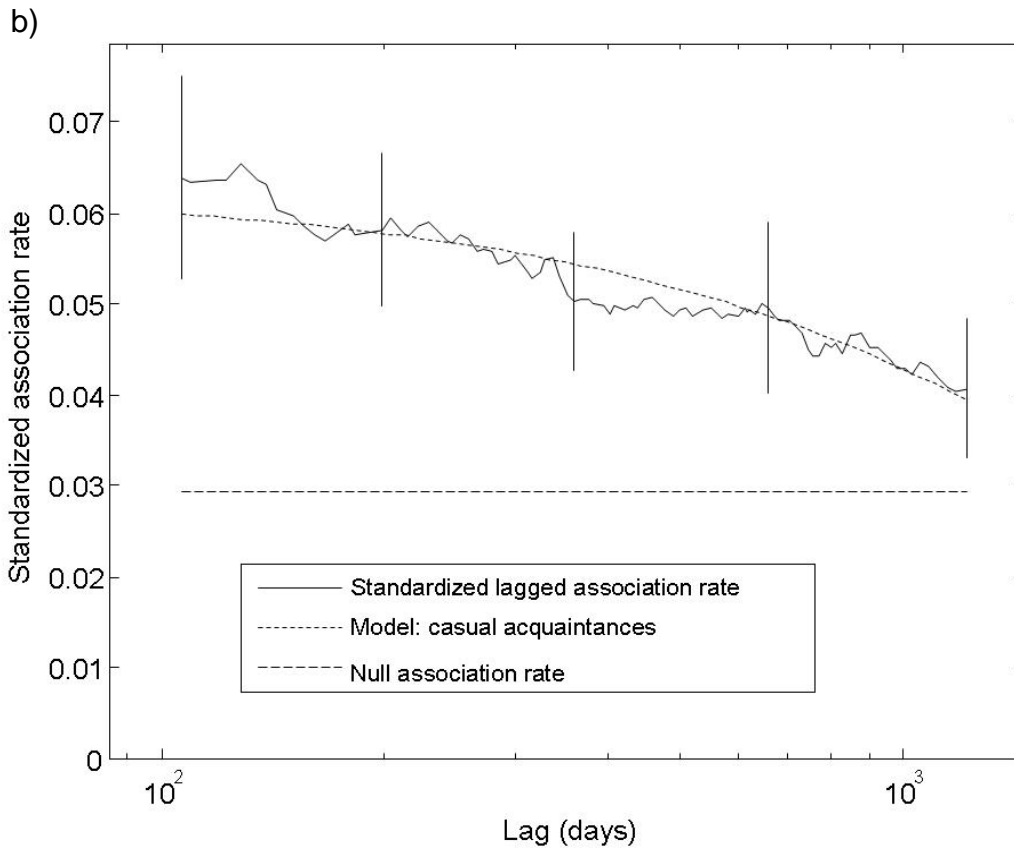
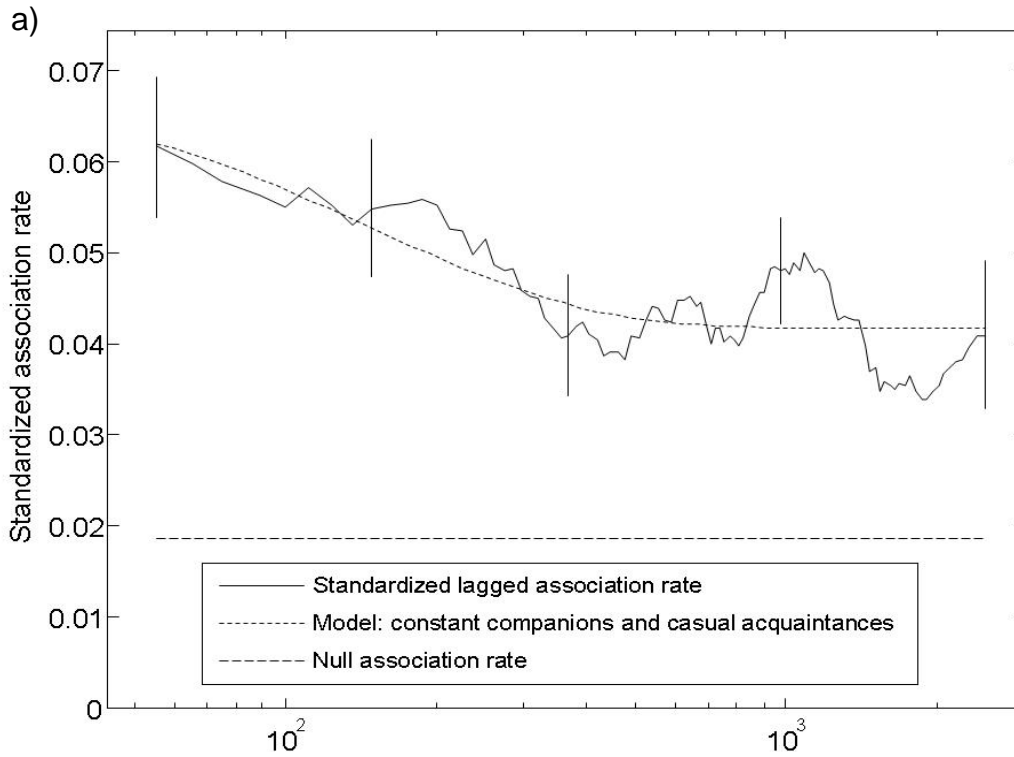


Figure 45. Standardized lagged association rates for each cluster: a) northern individuals, b) western individuals. Four models described in Whitehead (2007) were fit to each cluster, and goodness of fit was assessed with the quasi-Akaike information criterion (QAIC). The best models are included in the graphs.

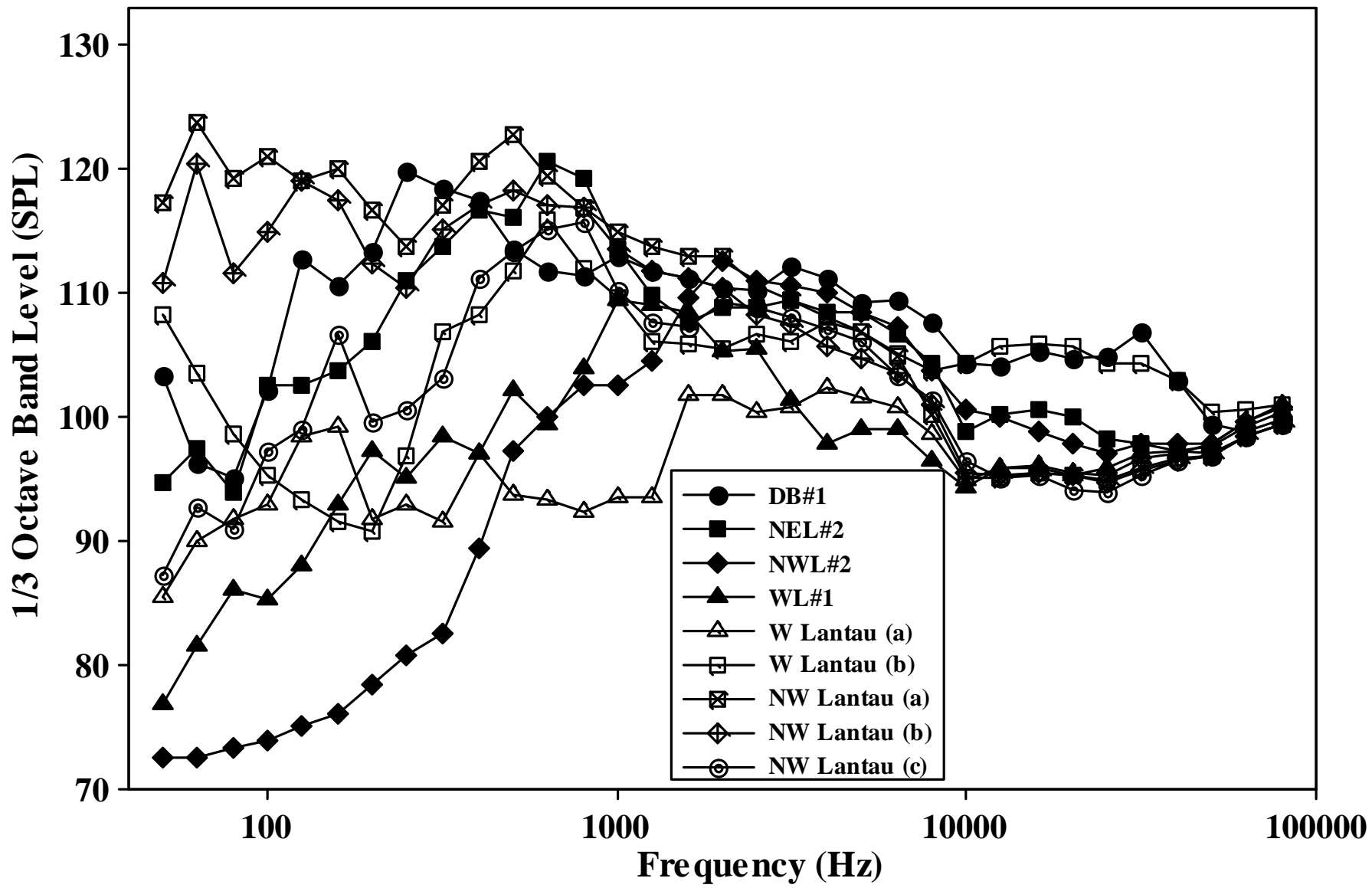


Figure 46. Low (LOW) activity station medians

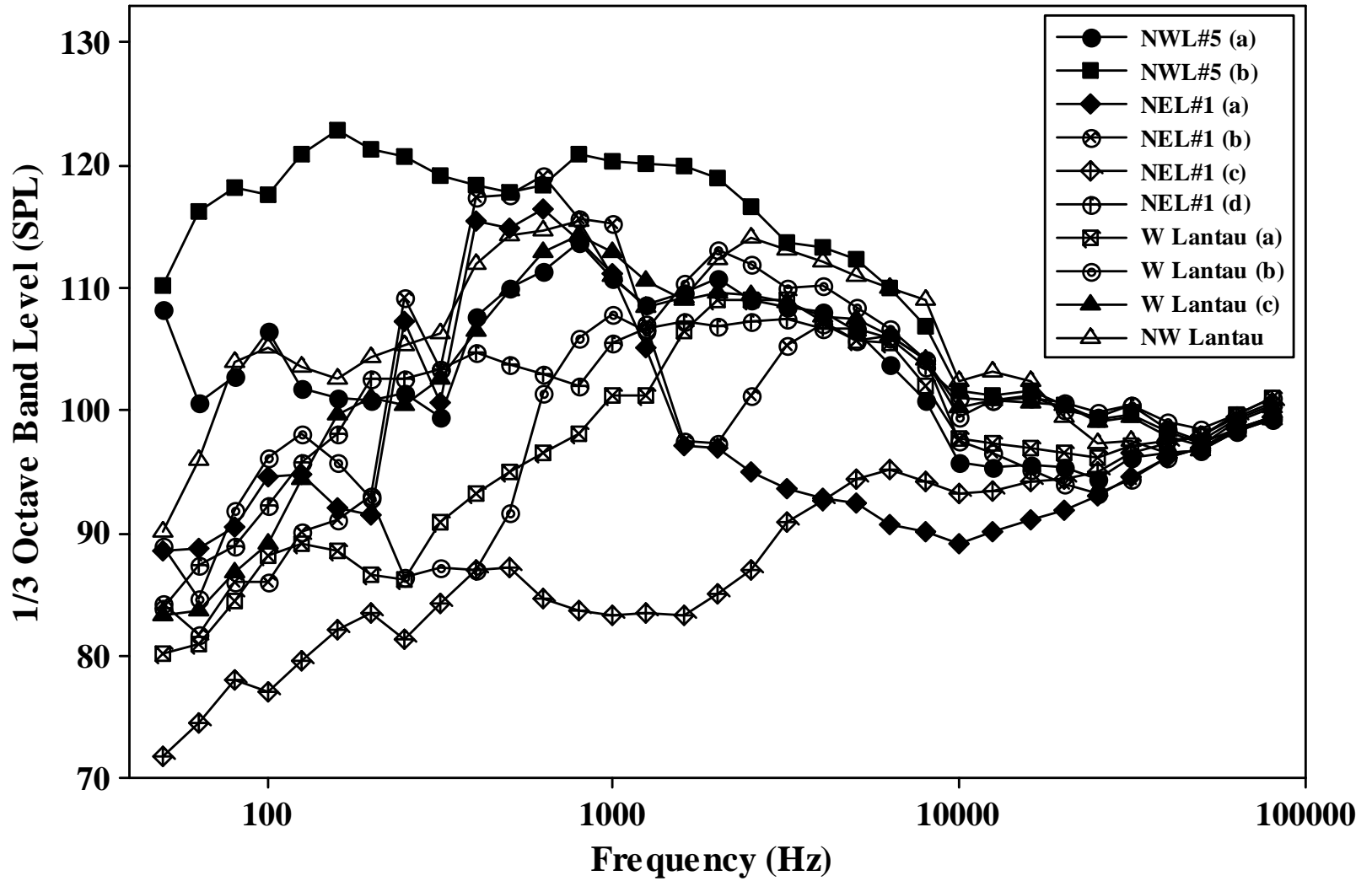


Figure 47. Moderate (MID) activity station medians

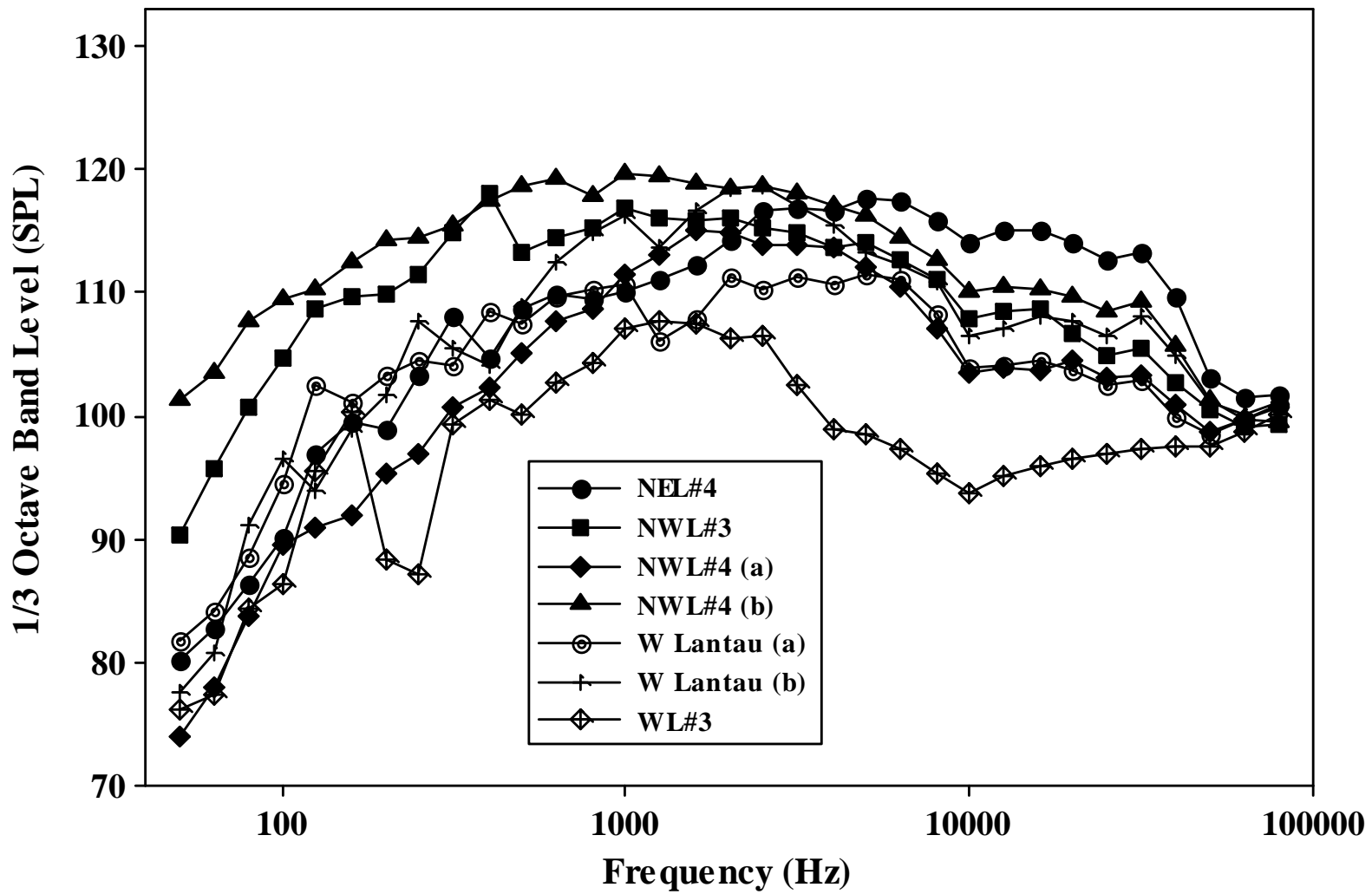


Figure 48. High (HI) activity station medians

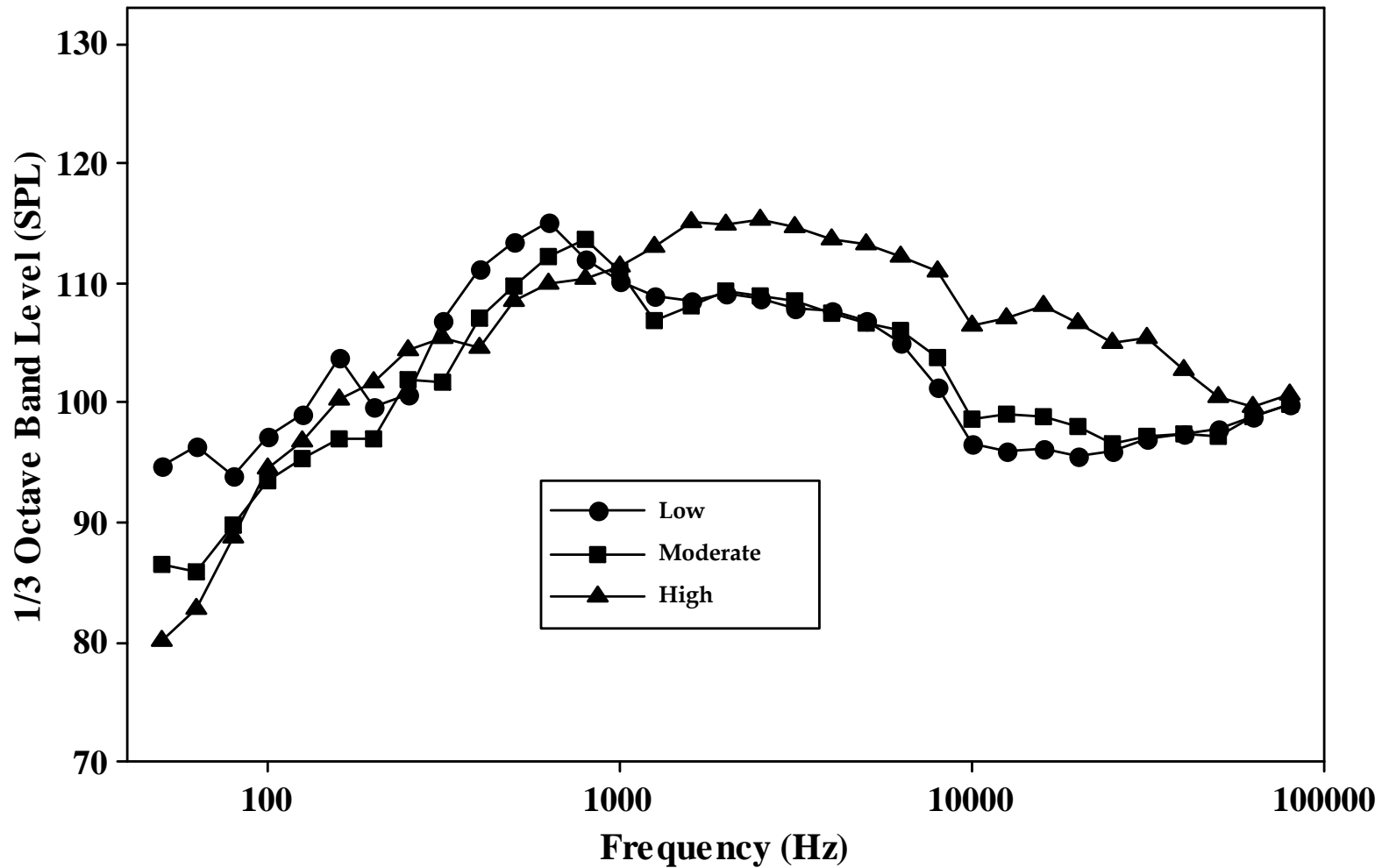


Figure 49. Medians of low, moderate and high activity station medians

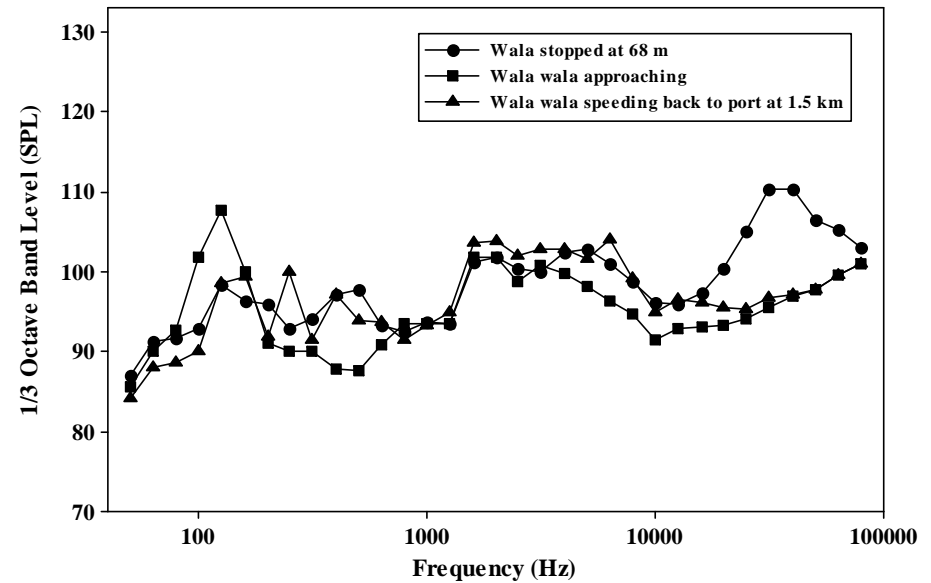
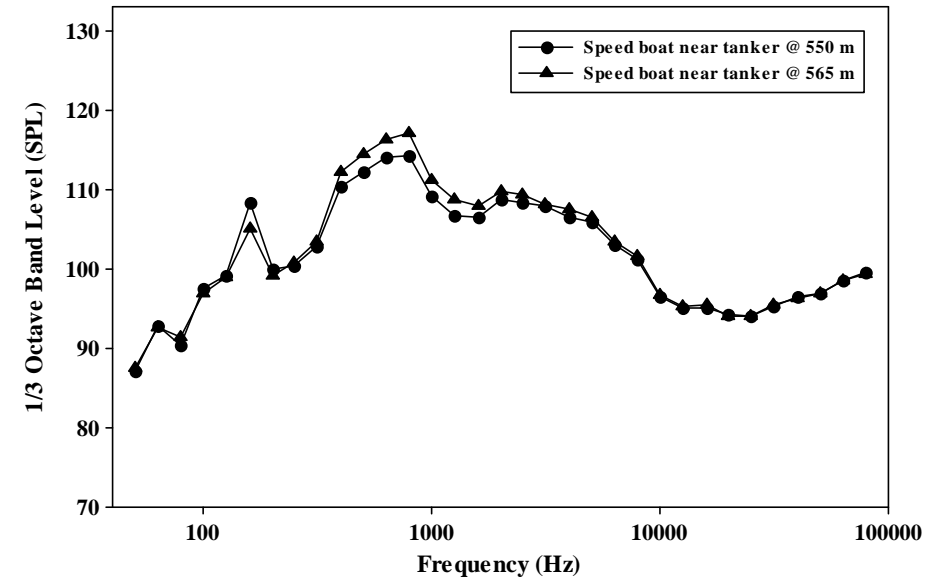
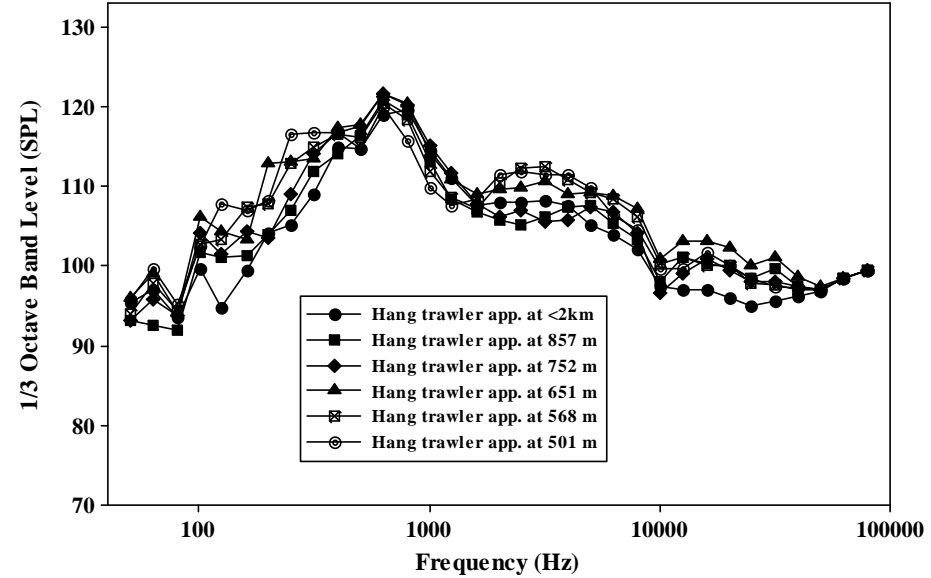
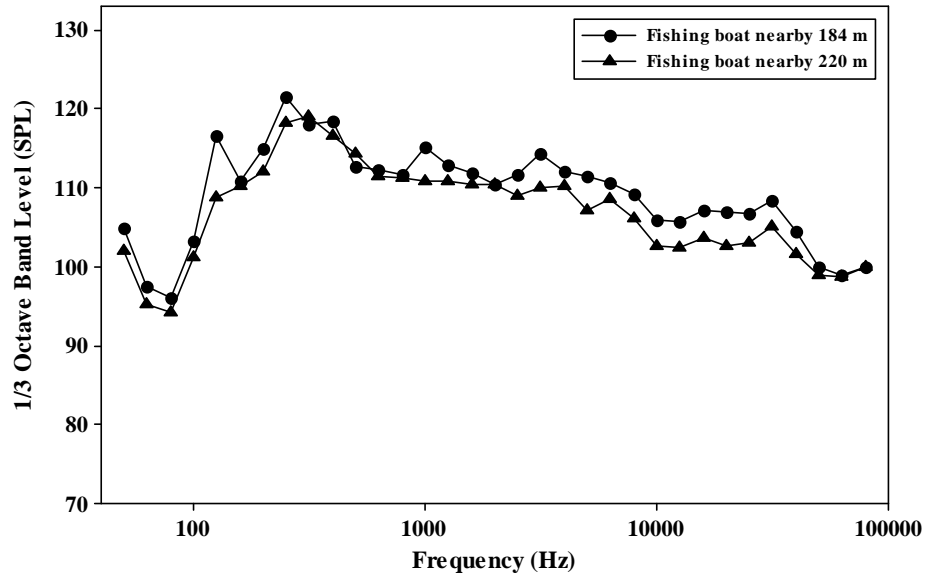


Figure 50. Several examples to illustrate medians of various activities within dolphin habitats

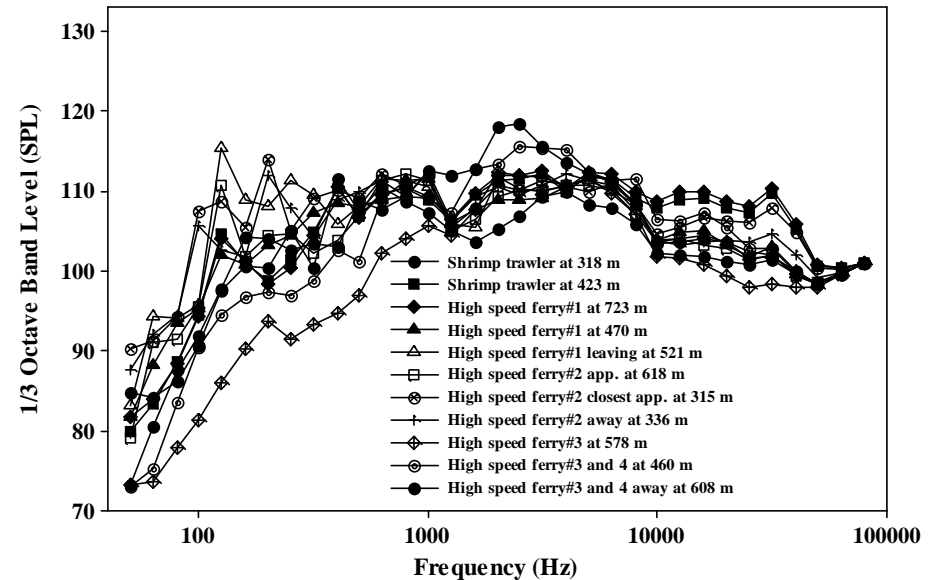
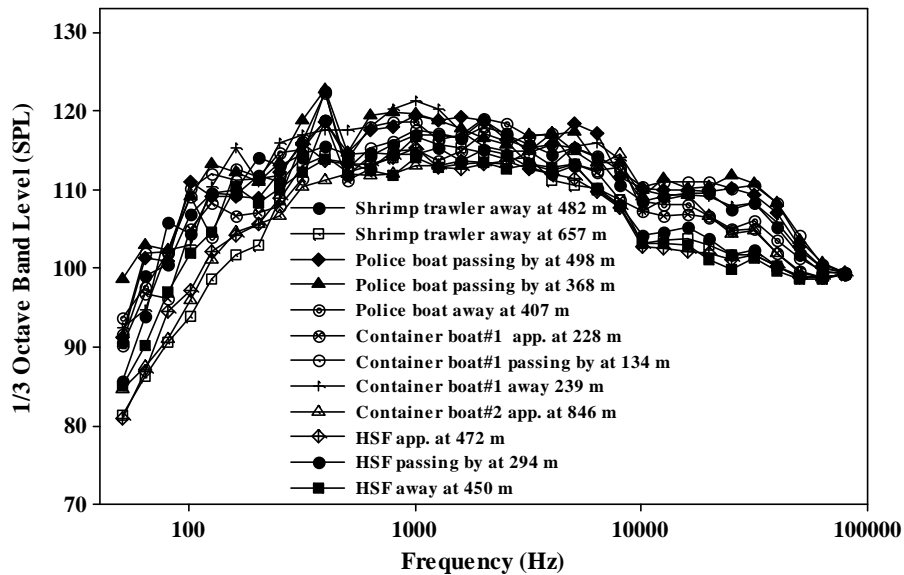
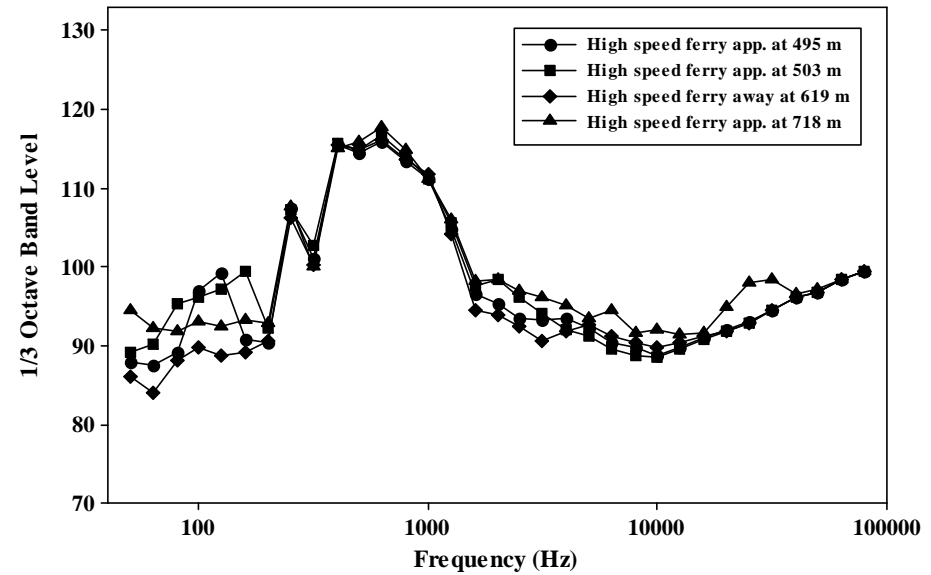
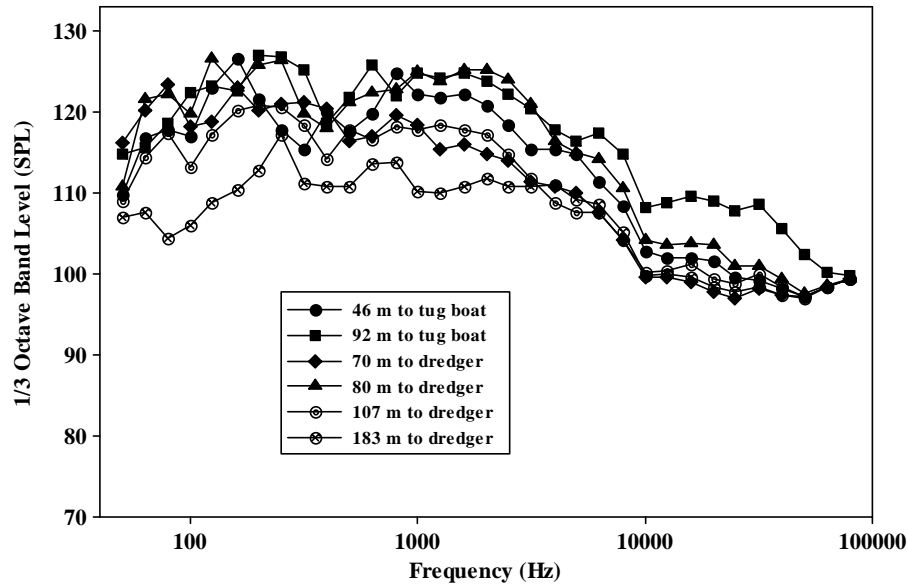


Figure 51. Several examples to illustrate medians of various activities within dolphin habitats

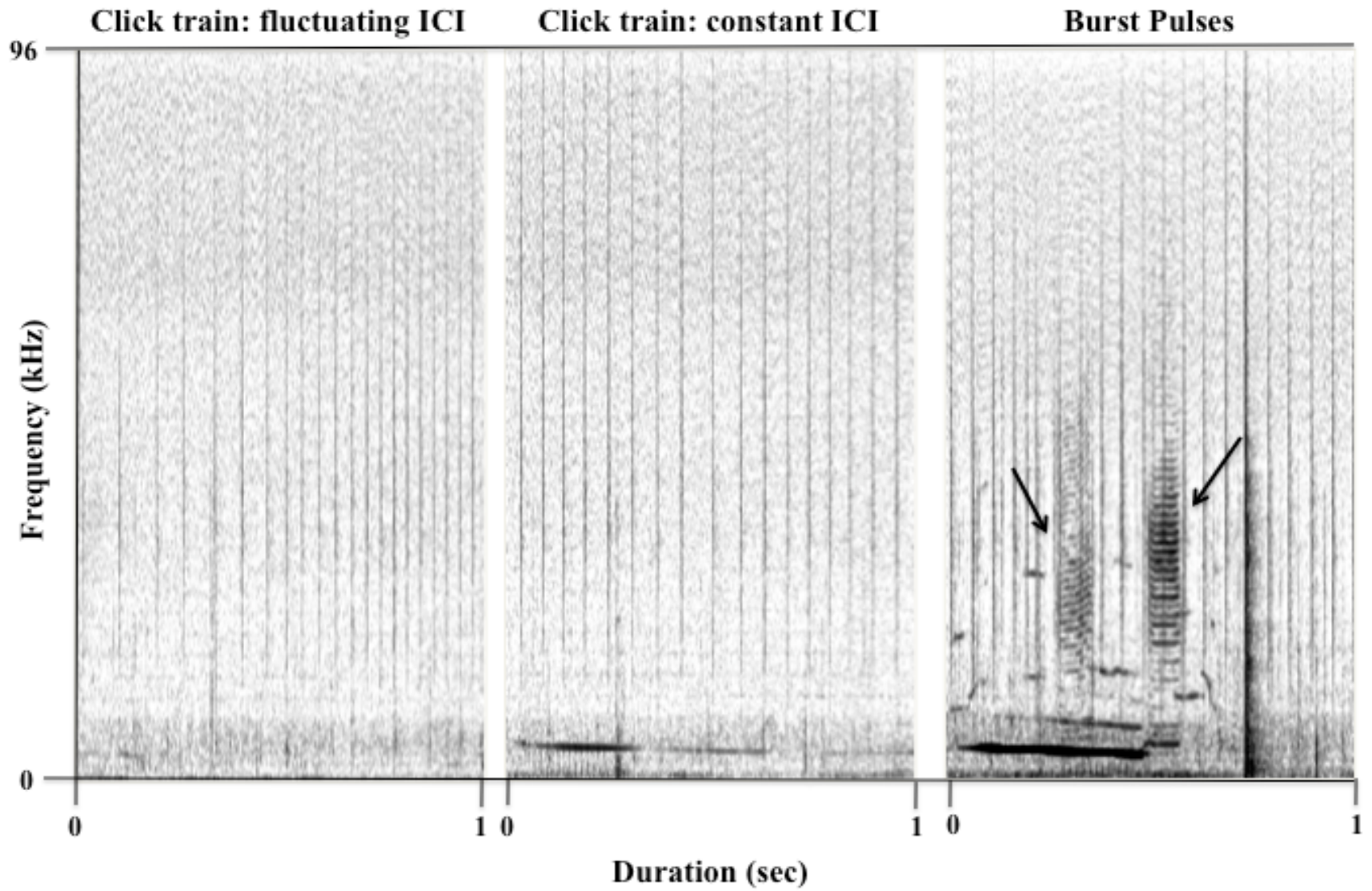


Figure 52. Spectrogram forms of click trains with fluctuating and constant ICIs & two burst pulses on the far right

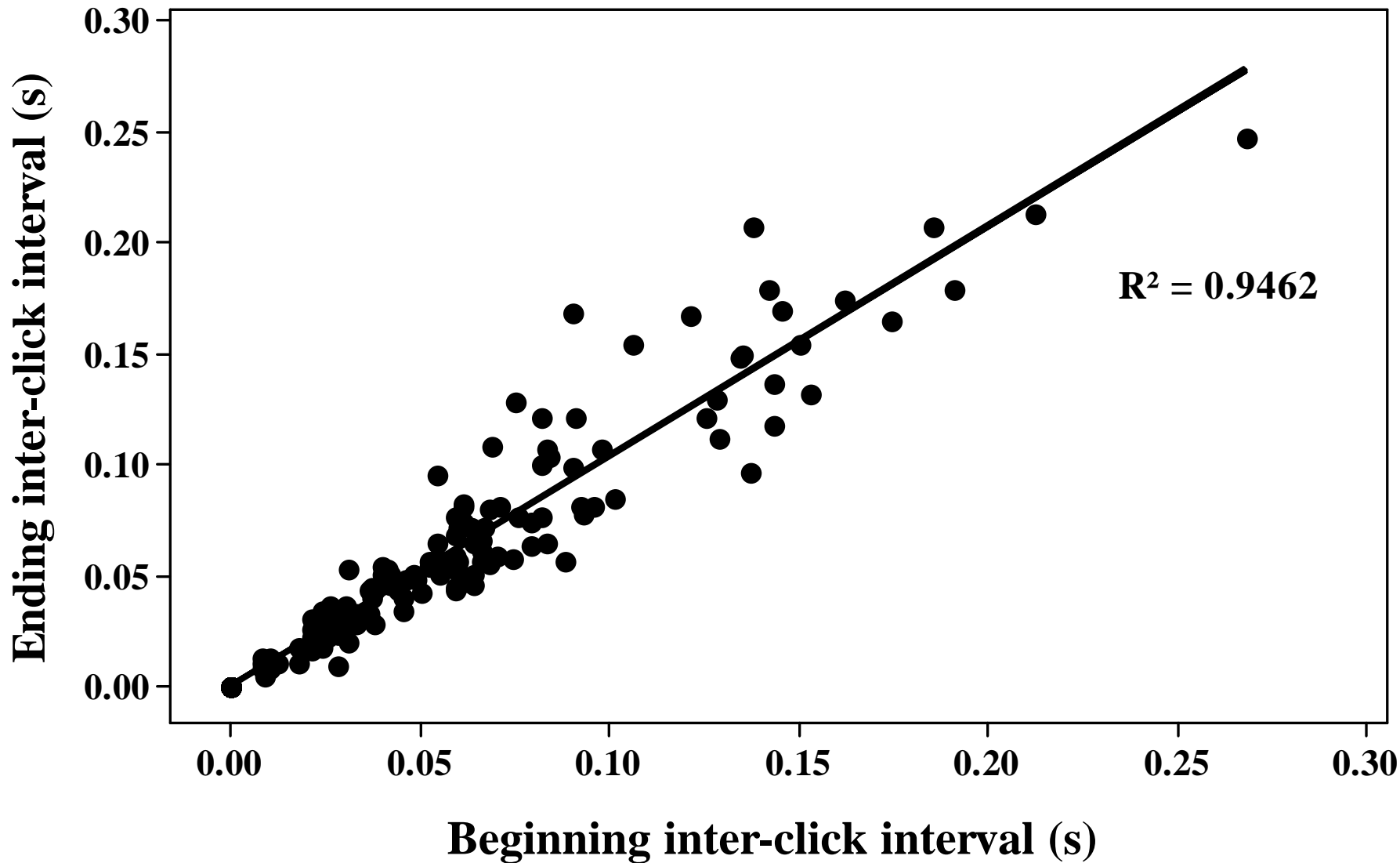


Figure 53. Scatterplot showing beginning ICI vs. ending ICI for click trains with constant ICIs

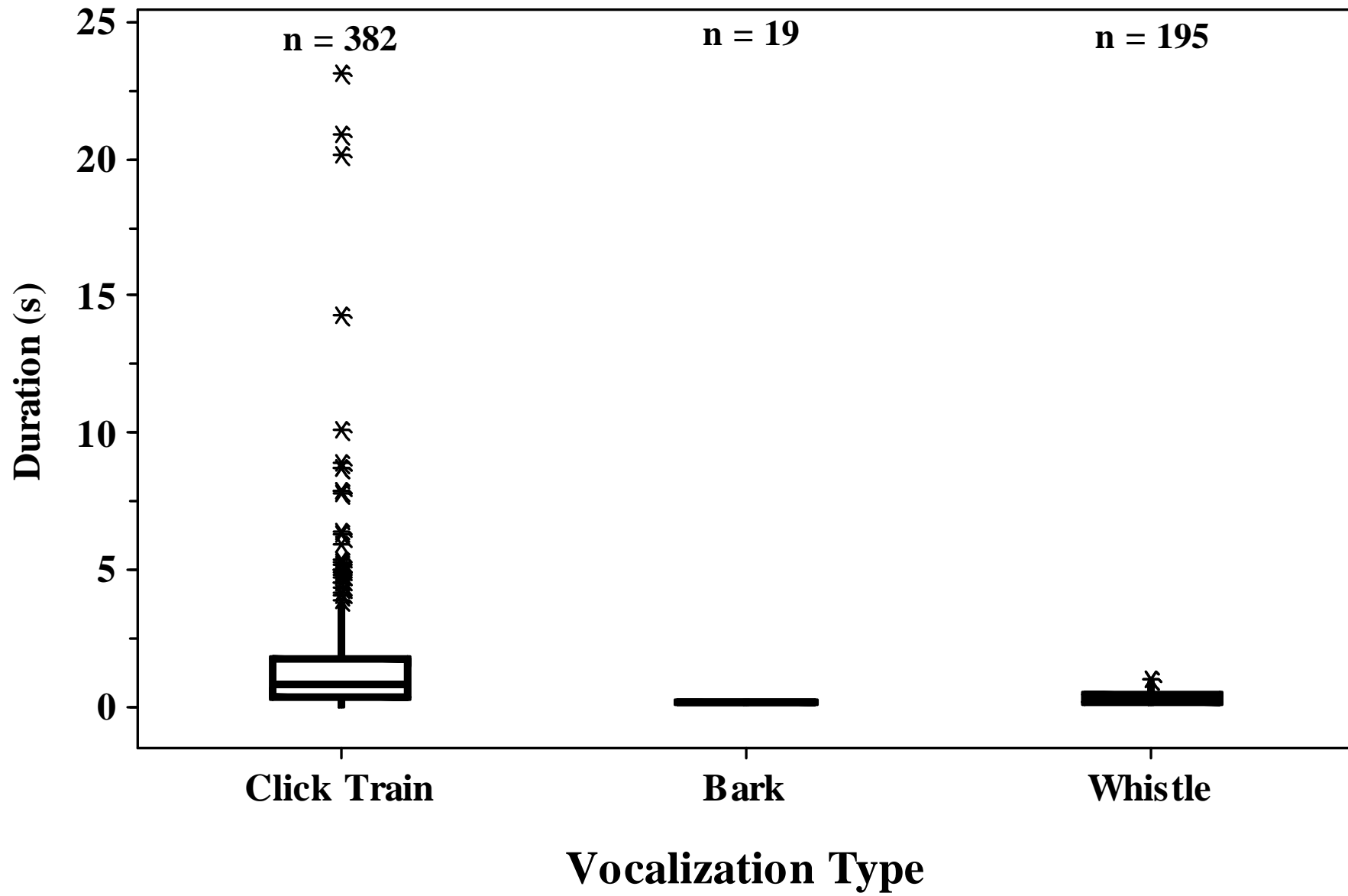


Figure 54. Distribution of duration (s) for each vocalization type

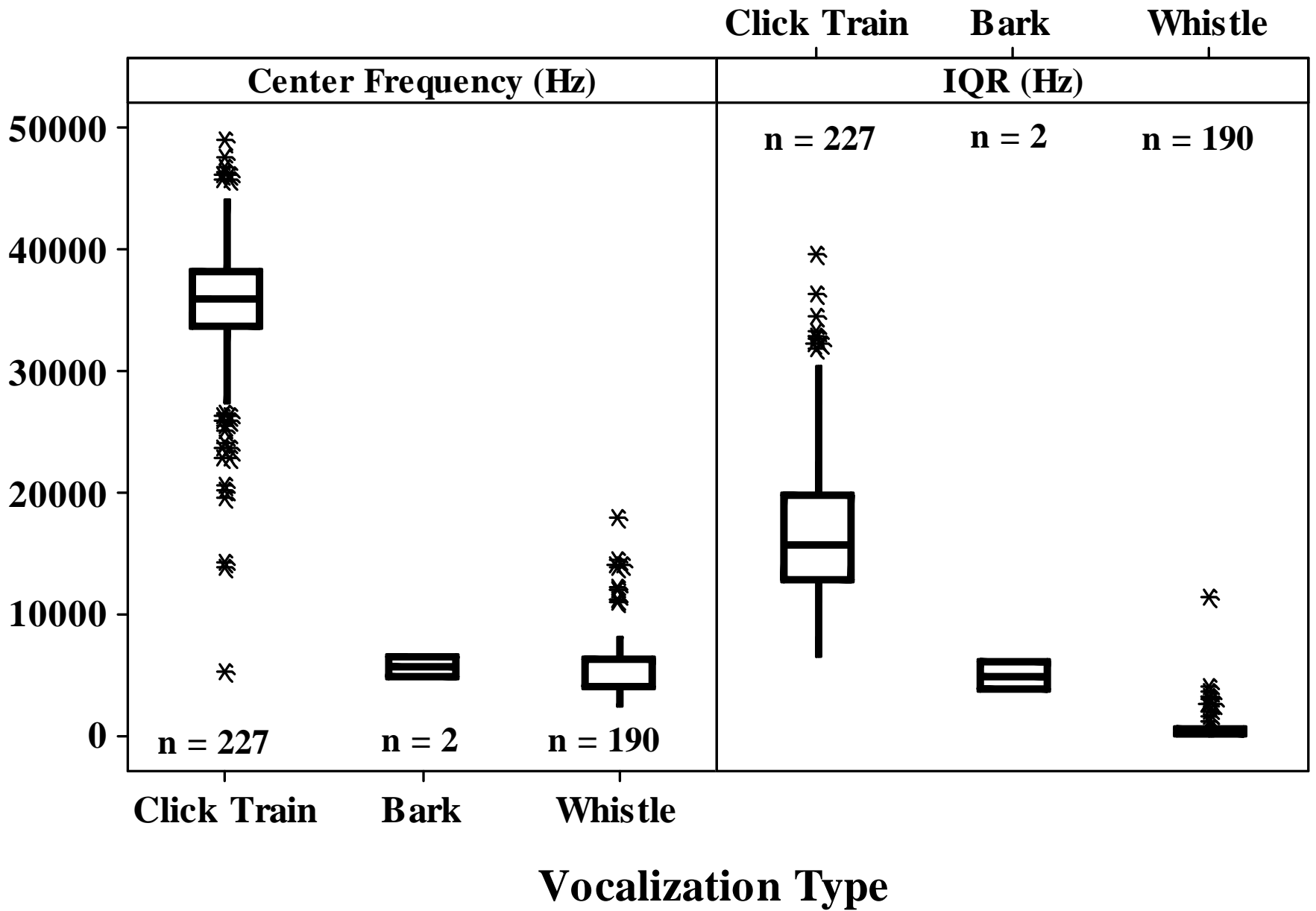


Figure 55. Vocalization distributions for center frequency and interquartile (IQR) range (Hz)

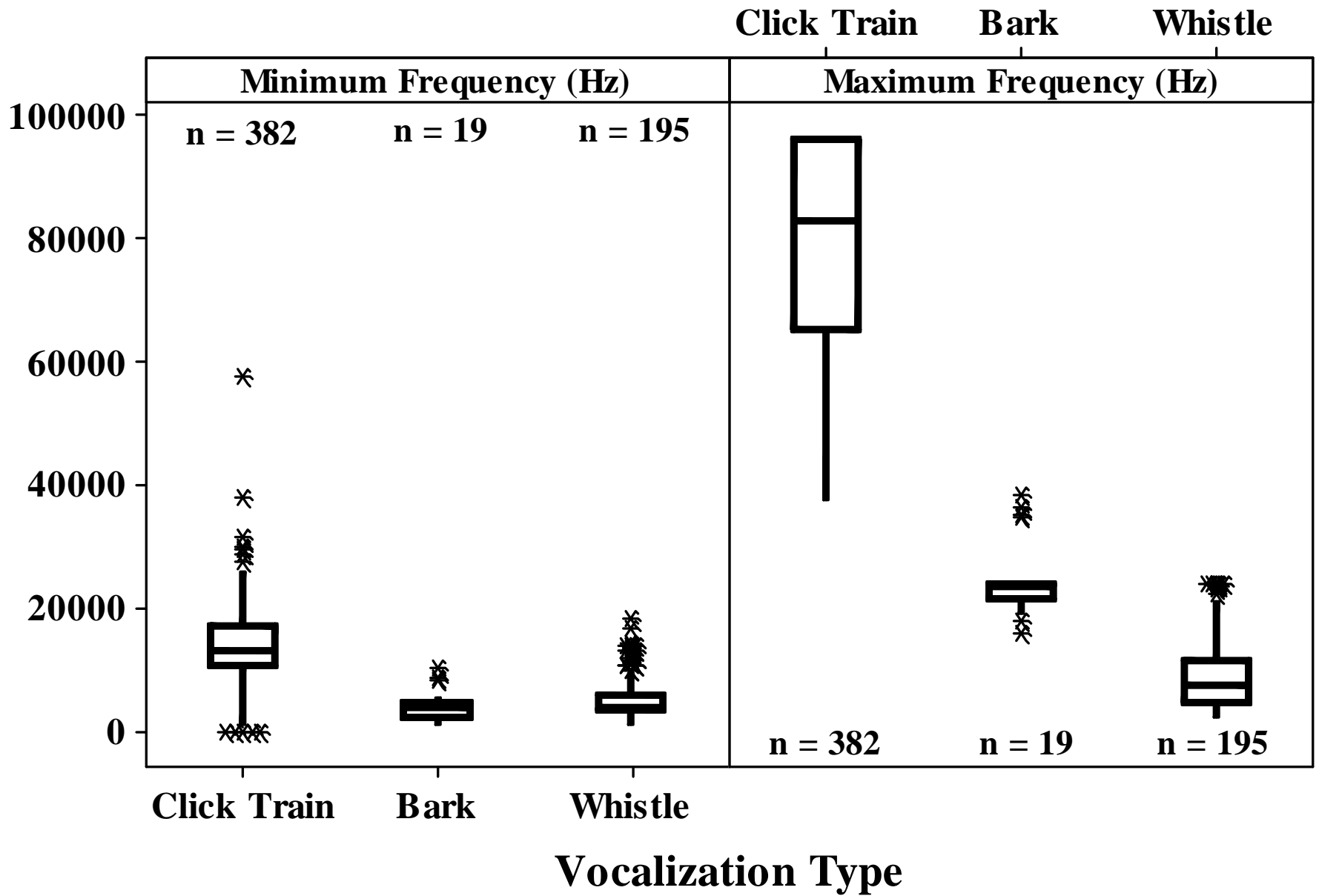


Figure 56. Distributions of vocalizations for minimum and maximum frequencies (Hz)

Whistle Variations

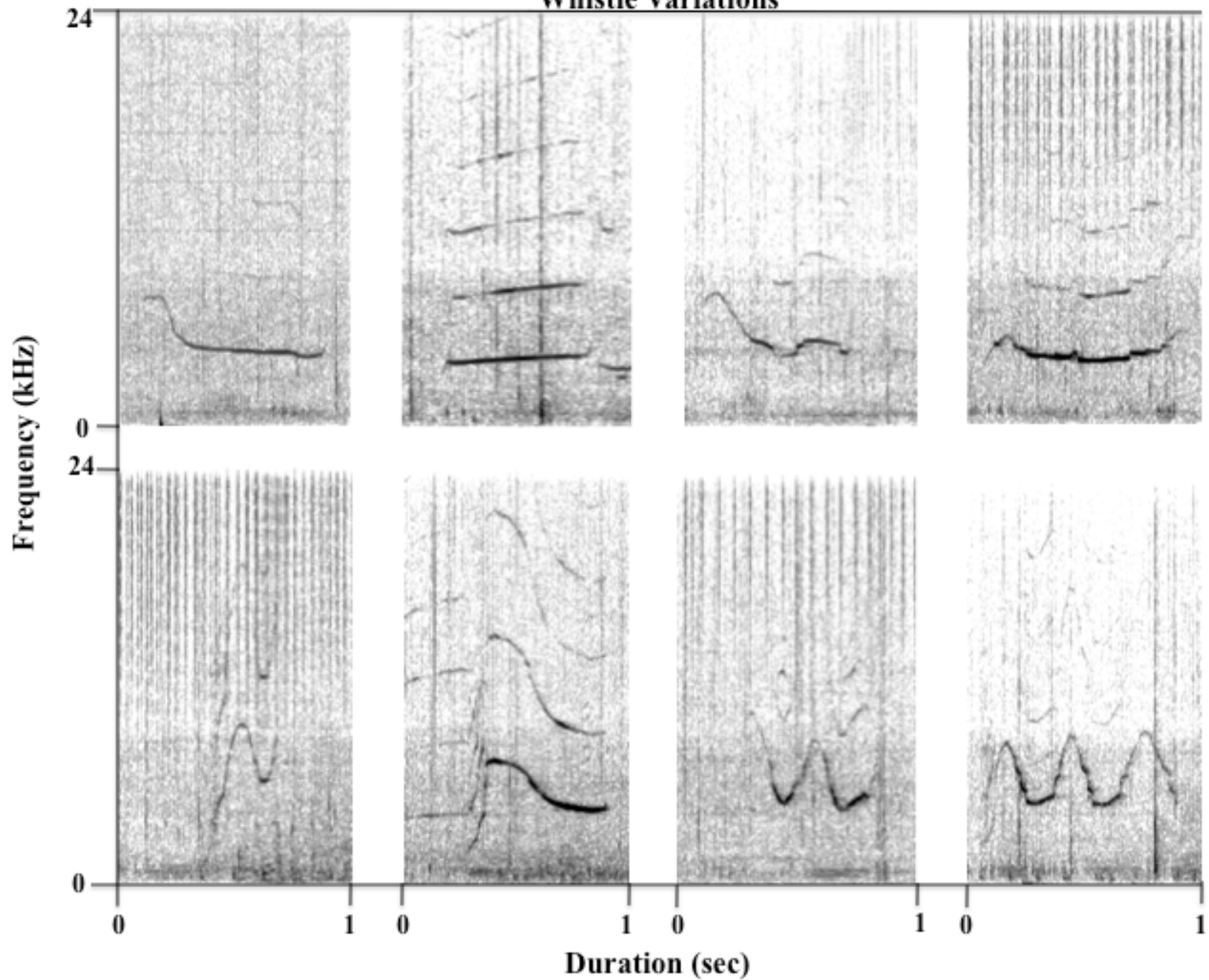


Figure 57. A subset of the variations found in whistle vocalizations