Monitoring of Chinese White Dolphins in Southwest Lantau Waters

3rd Monthly Progress Report (May 2015)
submitted to Environmental Project Office for the HZMB HKLR, HZMB HKBCF and TM-CLKL – Investigation

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1. Introduction

1.1. In March 2015, Hong Kong Cetacean Research Project (HKCRP) was appointed by the Environmental Project Office for the HZMB Hong Kong Projects to undertake a monitoring study of Chinese White Dolphins in Southwest Lantau (SWL) waters.

1.2. The objectives of the monitoring study are to quantify the abundance and density of Chinese White Dolphins in SWL waters, to identify individuals during the monitoring surveys, and to analyze their range use and movement patterns in Hong Kong and the wider Pearl River Estuary waters.

1.3. The monitoring study will supplement the on-going EM&A monitoring results of the HZMB Hong Kong Projects in North and West Lantau waters, and provide a more complete picture of dolphin usage and movements between different survey areas in western Hong Kong waters.

1.4. The present report is the third monthly progress report under this dolphin monitoring study submitted to the Environmental Project Office, summarizing the results of the surveys findings during the month of May 2015.

2. Monitoring Methodology

2.1. Vessel-based Line-transect Survey

2.1.1. According to the requirement of the technical proposal submitted to the Environmental

Project Office, dolphin monitoring programme should cover all transect lines in SWL survey area (see Figure 1) once per month upon instruction. The co-ordinates of all transect lines conducted during the dolphin monitoring survey are shown in Table 1.

Table 1. Co-ordinates of transect lines in SWL survey area (corresponding to transect line layout as shown in Figure 1)

Line #		Northing	Easting		Line #		Northing	Easting
SWL001	1	806180	802510		SWL007	13	807380	808520
	2	804250	802510			14	805600	808520
SWL002	3	806710	803480			15	804400	808520
	4	803450	803480			16	803000	808520
SWL003	5	807270	804500			17	802100	808520
	6	802690	804500			18	800470	808520
SWL004	7	807590	805450		SWL008	19	807380	809550
	8	802295	805450			20	805050	809550
SWL005	9	808490	806500			21	804400	809550
	10	801410	806500			22	800470	809550
SWL006	11	808500	807430		SWL009	23	807380	810550
	12	801250	807430			24	800470	810550
					SWL010	25	809410	811510
						26	801470	811510

2.1.2. The HKCRP survey team used standard line-transect methods (Buckland et al. 2001) to conduct the systematic vessel surveys, and followed the same technique of data collection that has been adopted over the last 17 years of marine mammal monitoring surveys in Hong Kong developed by HKCRP (see Hung 2014). For each monitoring vessel survey, a 15-m inboard vessel with an open upper deck (about 4.5 m above water surface) was used to make observations from the flying bridge area.

2.1.3. Two experienced observers from HKCRP (a data recorder and a primary observer) made up the on-effort survey team, and the survey vessel transited different transect lines at a

constant speed of 13-15 km per hour. The data recorder searched with unaided eyes and filled out the datasheets, while the primary observer searched for dolphins and porpoises continuously through 7 x 50 *Fujinon* marine binoculars. Both observers searched the sea ahead of the vessel, between 270^{o} and 90^{o} (in relation to the bow, which is defined as 0^{o}). One to two additional experienced observer was available on the boat to work in shift (i.e. rotate every 30 minutes) in order to minimize fatigue of the survey team members. All observers were experienced in small cetacean survey techniques and identifying local cetacean species.

2.1.4. During on-effort survey periods, the survey team recorded effort data including time, position (latitude and longitude), weather conditions (Beaufort sea state and visibility), and distance traveled in each series (a continuous period of search effort) with the assistance of a handheld GPS (*Garmin eTrex Legend*).

2.1.5. Data including time, position and vessel speed were also automatically and continuously logged by handheld GPS throughout the entire survey for subsequent review.

2.1.6. When dolphins were sighted, the survey team would end the survey effort, and immediately record the initial sighting distance and angle of the dolphin group from the survey vessel, as well as the sighting time and position. Then the research vessel was diverted from its course to approach the animals for species identification, group size estimation, assessment of group composition, and behavioural observations. The perpendicular distance (PSD) of the dolphin group to the transect line was later calculated from the initial sighting distance and angle.

2.1.7. Survey effort being conducted along the parallel transect lines that were perpendicular to the coastlines (as indicated in Figure 1) was labeled as “primary” survey effort, while the survey effort conducted along the connecting lines between parallel lines as well as the section around the Soko Islands was labeled as “secondary” survey effort. Both primary and secondary survey effort were presented as on-effort survey effort in this report.

2.1.8. Encounter rates of Chinese White Dolphins (number of on-effort sightings per 100 km of survey effort and number of dolphins from all on-effort sightings per 100 km of survey effort) were calculated in SWL survey area in relation to the amount of survey effort conducted during each month of monitoring survey. Only data collected under Beaufort 3 or below condition would be used for encounter rate analysis. Dolphin encounter rates were calculated using the combined survey effort from both primary and secondary lines for comparison to the historical data collected by HKCRP in this survey area. For the historical data, the encounter rates were calculated by pooling all relevant survey effort

and dolphin sightings to calculate a single index.

2.2. Photo-identification Work

2.2.1. When a group of Chinese White Dolphins were sighted during the line-transect survey, the survey team would end effort and approach the group slowly from the side and behind to take photographs of them. Every attempt was made to photograph every dolphin in the group, and even photograph both sides of the dolphins, since the colouration and markings on both sides may not be symmetrical.

2.2.2. A professional digital camera (*Canon* EOS 7D model), equipped with long telephoto lenses (100-400 mm zoom), were available on board for researchers to take sharp, close-up photographs of dolphins as they surfaced. The images were shot at the highest available resolution and stored on Compact Flash memory cards for downloading onto a computer.

2.2.3. All digital images taken in the field were first examined, and those containing potentially identifiable individuals were sorted out. These photographs would then be examined in greater detail, and were carefully compared to the existing Chinese White Dolphin photo-identification catalogue maintained by HKCRP since 1995. For individual dolphins that are not readily identifiable from the catalogue but have distinct features on their bodies, they will be placed in a pool of "potential new individuals", with decision being made at the end of each year on whether any of them should be incorporated into the photo-ID catalogue.

2.2.4. Chinese White Dolphins can be identified by their natural markings, such as nicks, cuts, scars and deformities on their dorsal fin and body, and their unique spotting patterns were also used as secondary identifying features (Jefferson 2000).

2.2.5. All photographs of each individual were then compiled and arranged in chronological order, with data including the date and location first identified (initial sighting), re-sightings, associated dolphins, distinctive features, and age classes entered into a computer database.

3. Monitoring Results

3.1. Vessel-based Line-transect Survey

3.1.1. One set of systematic line-transect vessel survey was conducted under the present

monitoring study on May 27th, 2015, to cover all transect lines in SWL survey area once (the survey route and track log are presented in Figure 2 and Appendix I respectively).

3.1.2. In addition, one line-transect survey was also conducted under the AFCD long-term dolphin and porpoise monitoring programme in SWL survey area on May 26th (with lines no. SWL006, SWL008 and SWL010 covered). Another off-effort search for dolphins and porpoises in SWL survey area was also conducted on May 15th under the AFCD monitoring programme. Such monitoring data were also incorporated into the present study for various analyses.

3.1.3. For the present study alone, a total of 70.70 km of survey effort was collected from 11:03 to 16:10 (i.e. 5 hours and 7 minutes of survey time), with 100% of the total survey effort being conducted under favourable weather conditions (i.e. Beaufort Sea State 3 or below with good visibility) in May 2015 (Appendix II). The total survey effort conducted on primary and secondary lines were 54.20 km and 16.50 km respectively. For the combined monitoring dataset from both the present study and AFCD monitoring study, a total of 97.30 km of survey effort was collected SWL waters in May 2015.

3.1.4. During this month, five groups of 18 Chinese White Dolphins were sighted from the present study's survey and AFCD monitoring surveys conducted in SWL survey area (Appendix III). In addition, a group of two dolphins were sighted in Southeast Lantau waters during transit after the survey in Southwest Lantau was completed on May 27th.

3.1.5. Two of the six dolphin sightings were made during on-effort search, and both on-effort sightings were made on primary lines. None of these dolphin groups was associated with operating fishing vessel.

3.1.6. In addition, two groups of five Indo-Pacific finless porpoises were also sighted during the AFCD monitoring survey in SWL survey area in May 2015.

3.1.7. Distribution of the dolphin sightings made in May 2015 is shown in Figure 3. The six sightings were mainly distributed at the northwestern end of the survey area near Fan Lau and Kau Ling Chung. One sighting was also made between the Soko Islands (Figure 3). The lone sighting made during off-effort search in Southeast Lantau was located near Chi Ma Wan Peninsula.

3.1.8. Encounter rates of Chinese White Dolphins deduced from the survey effort and on-effort sighting data made under favourable conditions (Beaufort 3 or below) in May 2014 are shown in Table 2. Comparison of encounter rates was also made to the one deduced in

spring months (March-May) in the past decade (2005-14) (Table 2).

Table 2. Overall dolphin encounter rates (sightings per 100 km of survey effort) from the present monitoring survey and combined database with AFCD monitoring survey conducted in May 2015 (primary lines only, as well as both primary lines and secondary lines were used) in Southwest Lantau survey area in comparison to the ones deduced during spring months in the past decade (March-May 2005-14)

	Encounter rate (STG) (no. of on-effort dolphin sightings per 100 km of survey effort)		**Encounter rate (ANI)** (no. of dolphins from all on-effort sightings per 100 km of survey effort)	
	Primary Lines Only	Both Primary and Secondary Lines	Primary Lines Only	Both Primary and Secondary Lines
HYD-HZMB data (May 2015)	3.69	2.83	11.07	8.49
Combined data (May 2015)	2.62	2.06	7.87	6.17
Historical Data (Spring 2005-14)		1.54		4.14

3.1.9. Dolphin encounter rates deduced in May 2015 in Southwest Lantau waters were higher than the ones deduced from historical data during the spring months of 2004-15 (Table 2).

3.1.10. The average group size of Chinese White Dolphins in May 2015 was 3.3 individuals per group. Most of the dolphin groups were very small, composed of only 1-3 animals. A larger group of eight dolphins was sighted near Fan Lau.

3.2. Photo-identification Work

3.2.1. Attempts were made to photograph the dolphins sighted during the May 2015 surveys.

3.2.2. Among the 20 dolphins sighted during present study's surveys, eight individual dolphins were identified and they were re-sighted eight times in total (Appendices IV and V). One of the individuals (WL94) was accompanied by her young calf.

3.2.3. The locations where these eight individuals were re-sighted were well within their past home ranges in Southwest and West Lantau waters. Notably, WL238 was sighted for the first time in Southwest Lantau waters, as its few other re-sightings were all made in West Lantau waters before.

4. References

Buckland, S. T., Anderson, D. R., Burnham, K. P., Laake, J. L., Borchers, D. L., and Thomas, L. 2001. Introduction to distance sampling: estimating abundance of biological populations. Oxford University Press, London.

Hung, S. K. 2014. Monitoring of Marine Mammals in Hong Kong waters: final report (2013-14). An unpublished report submitted to the Agriculture, Fisheries and Conservation Department, 231 pp.

Jefferson, T. A. 2000. Population biology of the Indo-Pacific hump-backed dolphin in Hong Kong waters. Wildlife Monographs 144:1-65.

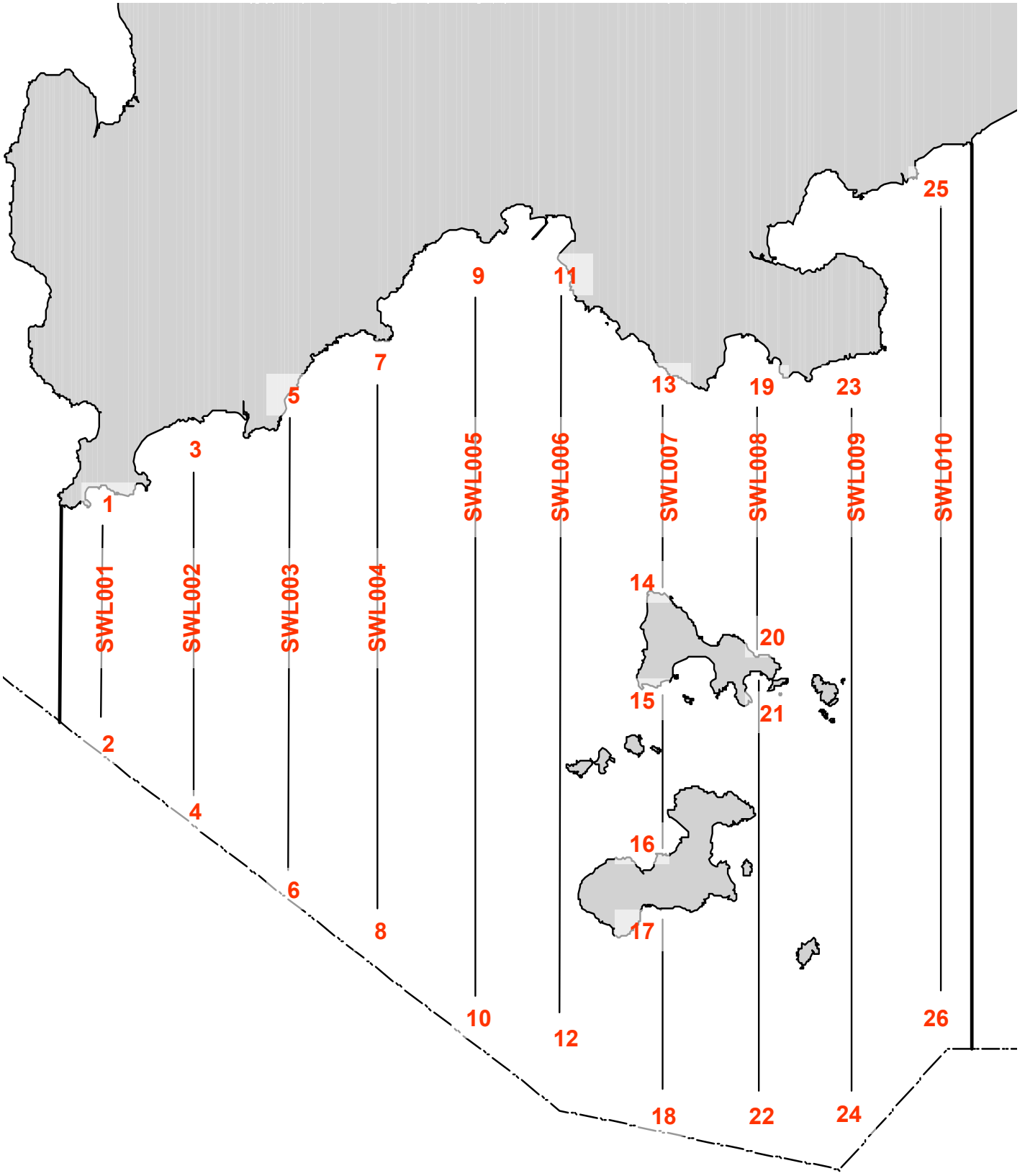

Figure 1. Survey Lines and associated coordinates in Southwest Lantau survey area

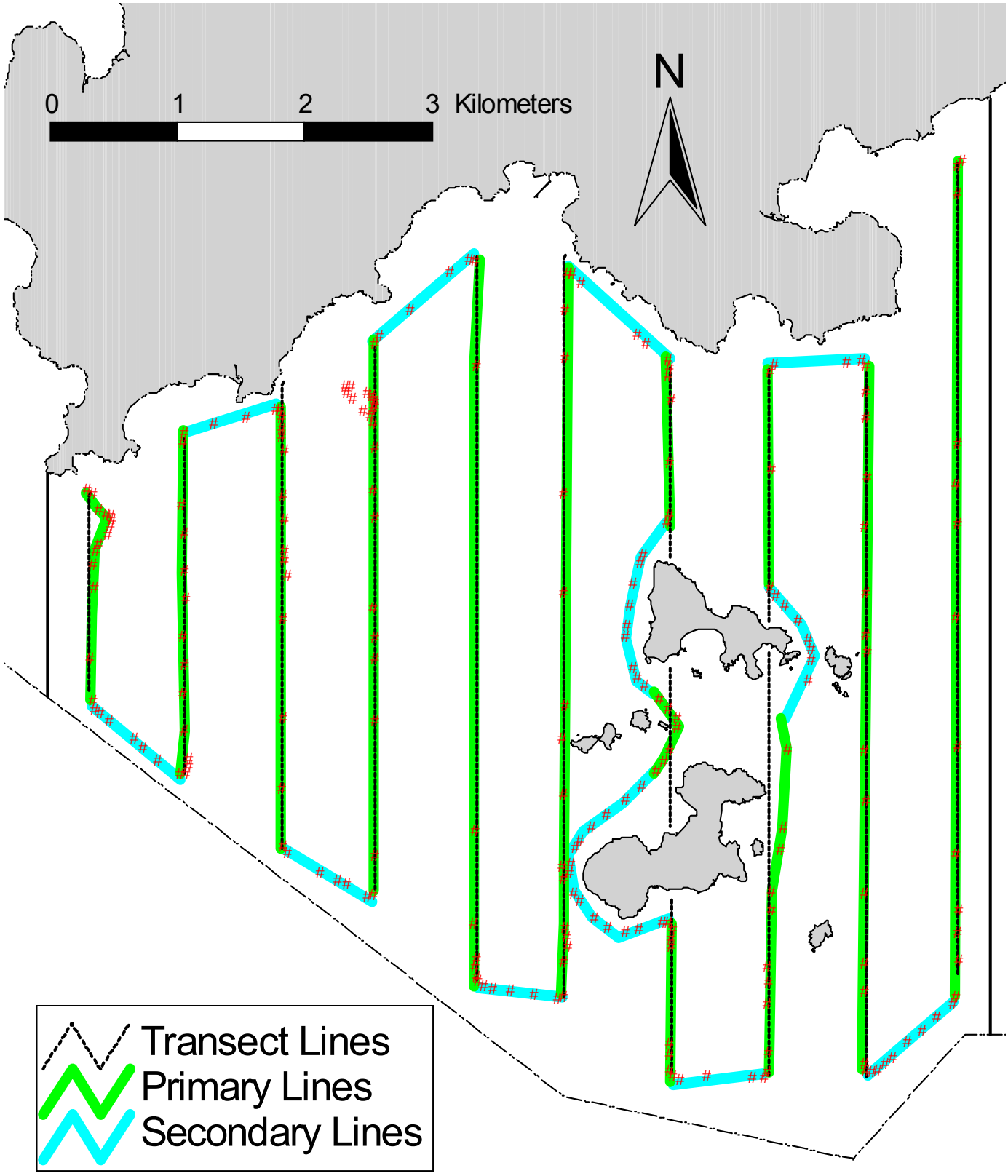

Figure 2. Survey Route on May 27th, 2015 (note: red dots represent the tracked positions of survey boat logged continuously by GPS throughout the course of the survey)

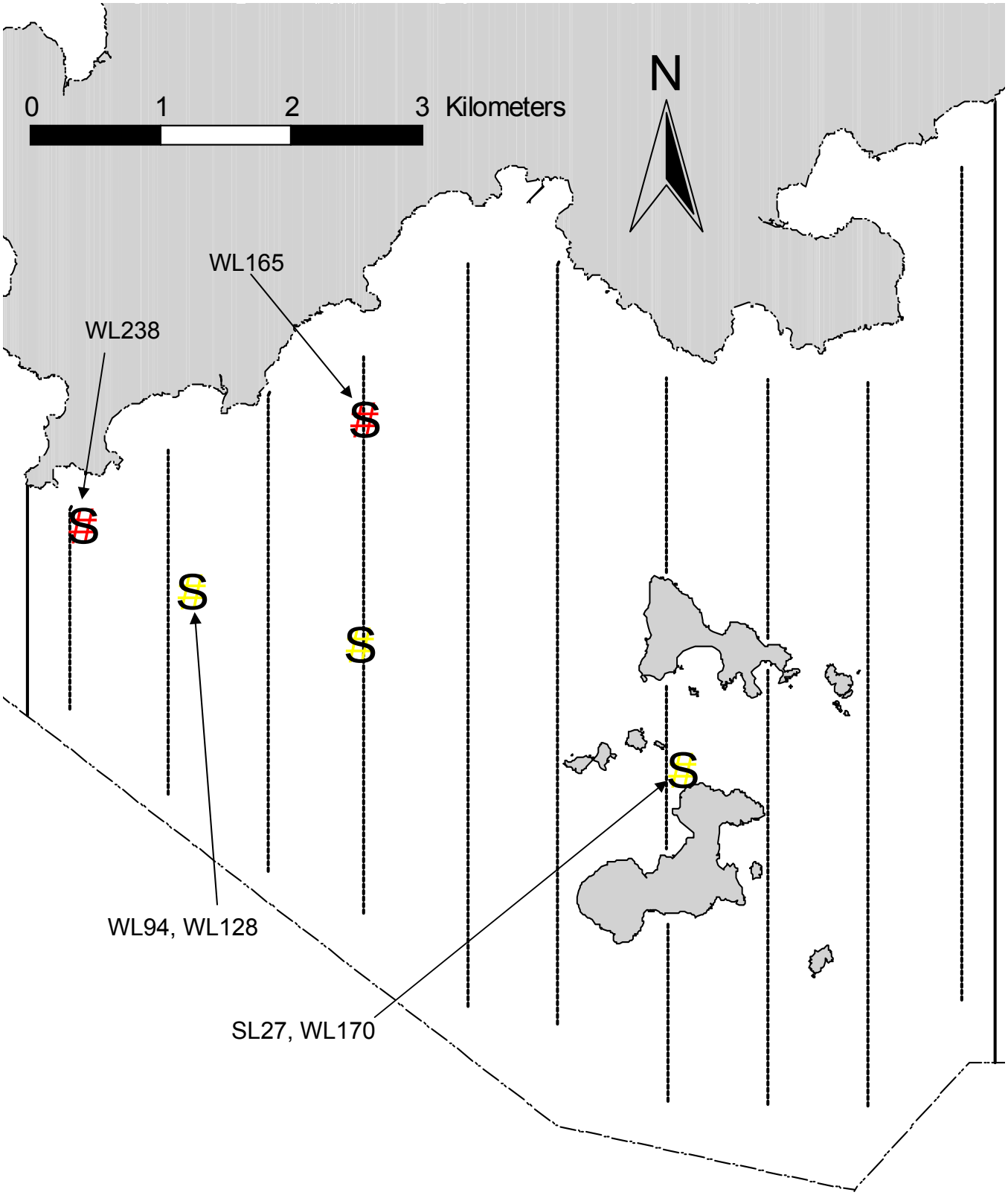

Figure 3. Distribution of Chinese White Dolphin sightings during May 2015 monitoring surveys in Southwest Lantau survey area, with identified individuals indicated for their corresponding sightings (red dot: HYD-HZMB sighting; yellow dot: AFCD sighting)

Appendix I. Track Log of SWL Survey on May 27th, 2015

Date & Time	EFFORT	Position	Leg Length	Leg Time	Leg Speed
27/5/2015 11:03	ON	N22.19413 E113.84912			
27/5/2015 11:03	ON	N22.19384 E113.84970	68 m	0:00:17	14 kph
27/5/2015 11:04	ON	N22.19320 E113.84997	77 m	0:00:19	15 kph
27/5/2015 11:04	ON	N22.19267 E113.85021	64 m	0:00:18	13 kph
27/5/2015 11:04	OFF	N22.19233 E113.85042	44 m	0:00:22	7 kph
27/5/2015 11:05	OFF	N22.19212 E113.85059	29 m	0:00:23	5 kph
27/5/2015 11:05	OFF	N22.19202 E113.85075	20 m	0:00:19	4 kph
27/5/2015 11:05	OFF	N22.19193 E113.85095	23 m	0:00:23	4 kph
27/5/2015 11:06	OFF	N22.19188 E113.85112	18 m	0:00:20	3 kph
27/5/2015 11:06	OFF	N22.19186 E113.85127	15 m	0:00:18	3 kph
27/5/2015 11:06	OFF	N22.19184 E113.85144	18 m	0:00:21	3 kph
27/5/2015 11:06	OFF	N22.19183 E113.85149	5 m	0:00:06	3 kph
27/5/2015 11:07	OFF	N22.19181 E113.85153	5 m	0:00:04	5 kph
27/5/2015 11:07	OFF	N22.19148 E113.85166	39 m	0:00:19	7 kph
27/5/2015 11:07	OFF	N22.19102 E113.85150	54 m	0:00:20	10 kph
27/5/2015 11:07	ON	N22.19053 E113.85141	55 m	0:00:15	13 kph
27/5/2015 11:08	ON	N22.19007 E113.85115	59 m	0:00:17	12 kph
27/5/2015 11:08	ON	N22.18961 E113.85072	68 m	0:00:20	12 kph
27/5/2015 11:08	ON	N22.18927 E113.85035	53 m	0:00:16	12 kph
27/5/2015 11:09	ON	N22.18870 E113.85001	73 m	0:00:21	13 kph
27/5/2015 11:09	ON	N22.18802 E113.84995	76 m	0:00:20	14 kph
27/5/2015 11:09	ON	N22.18745 E113.84974	67 m	0:00:18	13 kph
27/5/2015 11:10	ON	N22.18695 E113.84970	56 m	0:00:15	13 kph
27/5/2015 11:10	ON	N22.18618 E113.84978	86 m	0:00:20	15 kph
27/5/2015 11:10	ON	N22.18544 E113.84987	83 m	0:00:19	16 kph
27/5/2015 11:11	ON	N22.18469 E113.84979	85 m	0:00:20	15 kph
27/5/2015 11:11	ON	N22.18379 E113.84975	100 m	0:00:23	16 kph
27/5/2015 11:11	ON	N22.18315 E113.84964	72 m	0:00:17	15 kph
27/5/2015 11:12	ON	N22.18237 E113.84961	87 m	0:00:20	16 kph
27/5/2015 11:12	ON	N22.18155 E113.84962	91 m	0:00:21	16 kph
27/5/2015 11:12	ON	N22.18062 E113.84957	104 m	0:00:24	16 kph
27/5/2015 11:13	ON	N22.17994 E113.84953	76 m	0:00:18	15 kph
27/5/2015 11:13	ON	N22.17917 E113.84950	85 m	0:00:20	15 kph
27/5/2015 11:13	ON	N22.17836 E113.84959	91 m	0:00:21	16 kph
27/5/2015 11:14	ON	N22.17760 E113.84955	85 m	0:00:20	15 kph
27/5/2015 11:14	ON	N22.17679 E113.84958	90 m	0:00:21	15 kph
27/5/2015 11:14	ON	N22.17577 E113.84971	114 m	0:00:26	16 kph
27/5/2015 11:15	ON	N22.17546 E113.84974	34 m	0:00:08	16 kph
27/5/2015 11:15	ON	N22.17470 E113.84999	88 m	0:00:21	15 kph
27/5/2015 11:15	ON	N22.17427 E113.85048	70 m	0:00:15	17 kph
27/5/2015 11:15	ON	N22.17379 E113.85107	81 m	0:00:17	17 kph
27/5/2015 11:15	ON	N22.17371 E113.85118	14 m	0:00:03	17 kph
27/5/2015 11:16	ON	N22.17359 E113.85137	23 m	0:00:05	17 kph
27/5/2015 11:16	ON	N22.17352 E113.85149	14 m	0:00:03	17 kph
27/5/2015 11:16	ON	N22.17348 E113.85157	10 m	0:00:02	17 kph
27/5/2015 11:16	ON	N22.17342 E113.85169	14 m	0:00:03	17 kph
27/5/2015 11:16	ON	N22.17329 E113.85192	28 m	0:00:06	17 kph
27/5/2015 11:16	ON	N22.17306 E113.85232	48 m	0:00:10	17 kph
27/5/2015 11:16	ON	N22.17287 E113.85262	38 m	0:00:08	17 kph
27/5/2015 11:16	ON	N22.17234 E113.85352	110 m	0:00:23	17 kph
27/5/2015 11:17	ON	N22.17227 E113.85364	14 m	0:00:03	17 kph
27/5/2015 11:17	ON	N22.17212 E113.85386	28 m	0:00:06	17 kph
27/5/2015 11:17	ON	N22.17161 E113.85454	91 m	0:00:19	17 kph
27/5/2015 11:17	ON	N22.17129 E113.85491	51 m	0:00:11	17 kph
27/5/2015 11:17	ON	N22.17074 E113.85554	89 m	0:00:19	17 kph
27/5/2015 11:18	ON	N22.17019 E113.85635	104 m	0:00:22	17 kph
27/5/2015 11:18	ON	N22.16989 E113.85686	62 m	0:00:13	17 kph
27/5/2015 11:18	ON	N22.16976 E113.85710	29 m	0:00:06	17 kph
27/5/2015 11:18	ON	N22.16971 E113.85718	10 m	0:00:02	18 kph
27/5/2015 11:18	ON	N22.16962 E113.85734	19 m	0:00:04	17 kph
27/5/2015 11:18	ON	N22.16956 E113.85745	14 m	0:00:03	17 kph
27/5/2015 11:18	ON	N22.16951 E113.85753	10 m	0:00:02	18 kph
27/5/2015 11:18	ON	N22.16927 E113.85797	53 m	0:00:11	17 kph
27/5/2015 11:19	ON	N22.16920 E113.85809	14 m	0:00:03	17 kph

Appendix I. (cont'd)

Date & Time	EFFORT	Position	Leg Length	Leg Time	Leg Speed
27/5/2015 11:19	ON	N22.16910 E113.85824	19 m	0:00:04	17 kph
27/5/2015 11:19	ON	N22.16903 E113.85836	15 m	0:00:03	18 kph
27/5/2015 11:19	ON	N22.16896 E113.85848	15 m	0:00:03	17 kph
27/5/2015 11:19	ON	N22.16897 E113.85920	74 m	0:00:19	14 kph
27/5/2015 11:19	ON	N22.16966 E113.85948	82 m	0:00:23	13 kph
27/5/2015 11:20	ON	N22.17040 E113.85944	82 m	0:00:23	13 kph
27/5/2015 11:20	ON	N22.17120 E113.85930	90 m	0:00:25	13 kph
27/5/2015 11:21	ON	N22.17192 E113.85908	83 m	0:00:24	13 kph
27/5/2015 11:21	ON	N22.17276 E113.85897	95 m	0:00:26	13 kph
27/5/2015 11:21	ON	N22.17361 E113.85897	94 m	0:00:25	14 kph
27/5/2015 11:22	ON	N22.17447 E113.85893	95 m	0:00:26	13 kph
27/5/2015 11:22	ON	N22.17523 E113.85890	85 m	0:00:23	13 kph
27/5/2015 11:23	ON	N22.17595 E113.85884	80 m	0:00:22	13 kph
27/5/2015 11:23	ON	N22.17681 E113.85891	96 m	0:00:25	14 kph
27/5/2015 11:23	ON	N22.17765 E113.85893	94 m	0:00:25	14 kph
27/5/2015 11:24	ON	N22.17857 E113.85895	102 m	0:00:27	14 kph
27/5/2015 11:24	ON	N22.17953 E113.85898	108 m	0:00:28	14 kph
27/5/2015 11:25	ON	N22.18039 E113.85889	96 m	0:00:26	13 kph
27/5/2015 11:25	ON	N22.18115 E113.85879	85 m	0:00:24	13 kph
27/5/2015 11:26	ON	N22.18198 E113.85892	93 m	0:00:24	14 kph
27/5/2015 11:26	ON	N22.18274 E113.85893	84 m	0:00:22	14 kph
27/5/2015 11:26	ON	N22.18360 E113.85908	97 m	0:00:25	14 kph
27/5/2015 11:27	ON	N22.18450 E113.85906	100 m	0:00:27	13 kph
27/5/2015 11:27	ON	N22.18530 E113.85900	89 m	0:00:24	13 kph
27/5/2015 11:28	ON	N22.18612 E113.85887	92 m	0:00:26	13 kph
27/5/2015 11:28	ON	N22.18695 E113.85886	93 m	0:00:25	13 kph
27/5/2015 11:28	ON	N22.18767 E113.85885	80 m	0:00:21	14 kph
27/5/2015 11:29	ON	N22.18853 E113.85890	96 m	0:00:25	14 kph
27/5/2015 11:29	ON	N22.18943 E113.85891	101 m	0:00:26	14 kph
27/5/2015 11:30	ON	N22.19029 E113.85896	95 m	0:00:24	14 kph
27/5/2015 11:30	ON	N22.19113 E113.85886	95 m	0:00:25	14 kph
27/5/2015 11:30	ON	N22.19191 E113.85878	87 m	0:00:22	14 kph
27/5/2015 11:31	ON	N22.19279 E113.85861	100 m	0:00:25	14 kph
27/5/2015 11:31	ON	N22.19363 E113.85867	94 m	0:00:24	14 kph
27/5/2015 11:32	ON	N22.19450 E113.85871	97 m	0:00:25	14 kph
27/5/2015 11:32	ON	N22.19546 E113.85875	108 m	0:00:28	14 kph
27/5/2015 11:33	ON	N22.19645 E113.85877	109 m	0:00:29	14 kph
27/5/2015 11:33	ON	N22.19733 E113.85885	99 m	0:00:26	14 kph
27/5/2015 11:34	ON	N22.19829 E113.85883	106 m	0:00:28	14 kph
27/5/2015 11:34	ON	N22.19914 E113.85896	96 m	0:00:26	13 kph
27/5/2015 11:34	ON	N22.19943 E113.85963	76 m	0:00:23	12 kph
27/5/2015 11:35	ON	N22.19957 E113.86033	73 m	0:00:21	13 kph
27/5/2015 11:35	ON	N22.19978 E113.86113	86 m	0:00:25	12 kph
27/5/2015 11:36	ON	N22.20003 E113.86189	82 m	0:00:24	12 kph
27/5/2015 11:36	ON	N22.20021 E113.86268	85 m	0:00:25	12 kph
27/5/2015 11:36	ON	N22.20030 E113.86343	78 m	0:00:23	12 kph
27/5/2015 11:37	ON	N22.20040 E113.86407	67 m	0:00:20	12 kph
27/5/2015 11:37	ON	N22.20050 E113.86454	50 m	0:00:15	12 kph
27/5/2015 11:37	ON	N22.20058 E113.86509	57 m	0:00:17	12 kph
27/5/2015 11:38	ON	N22.20074 E113.86570	66 m	0:00:20	12 kph
27/5/2015 11:38	ON	N22.20088 E113.86626	59 m	0:00:18	12 kph
27/5/2015 11:38	ON	N22.20102 E113.86681	59 m	0:00:18	12 kph
27/5/2015 11:38	ON	N22.20117 E113.86740	63 m	0:00:19	12 kph
27/5/2015 11:39	ON	N22.20132 E113.86807	71 m	0:00:21	12 kph
27/5/2015 11:39	ON	N22.20119 E113.86855	51 m	0:00:16	12 kph
27/5/2015 11:39	ON	N22.20046 E113.86882	86 m	0:00:22	14 kph
27/5/2015 11:40	ON	N22.19960 E113.86884	95 m	0:00:23	15 kph
27/5/2015 11:40	ON	N22.19894 E113.86881	75 m	0:00:18	15 kph
27/5/2015 11:40	ON	N22.19822 E113.86895	81 m	0:00:20	15 kph
27/5/2015 11:41	ON	N22.19761 E113.86904	69 m	0:00:17	15 kph
27/5/2015 11:41	ON	N22.19678 E113.86898	93 m	0:00:22	15 kph
27/5/2015 11:41	ON	N22.19606 E113.86897	80 m	0:00:19	15 kph
27/5/2015 11:42	ON	N22.19533 E113.86895	81 m	0:00:19	15 kph
27/5/2015 11:42	ON	N22.19437 E113.86894	107 m	0:00:25	15 kph

Appendix I. (cont'd)

Date & Time	EFFORT	Position	Leg Length	Leg Time	Leg Speed
27/5/2015 11:43	ON	N22.19360 E113.86891	86 m	0:00:20	15 kph
27/5/2015 11:43	ON	N22.19297 E113.86893	71 m	0:00:17	15 kph
27/5/2015 11:43	ON	N22.19222 E113.86899	83 m	0:00:20	15 kph
27/5/2015 11:43	ON	N22.19163 E113.86902	65 m	0:00:16	15 kph
27/5/2015 11:44	ON	N22.19109 E113.86900	60 m	0:00:15	14 kph
27/5/2015 11:44	ON	N22.19051 E113.86898	64 m	0:00:16	14 kph
27/5/2015 11:44	ON	N22.18969 E113.86896	92 m	0:00:22	15 kph
27/5/2015 11:45	ON	N22.18883 E113.86896	96 m	0:00:23	15 kph
27/5/2015 11:45	ON	N22.18804 E113.86914	91 m	0:00:22	15 kph
27/5/2015 11:45	ON	N22.18726 E113.86927	88 m	0:00:21	15 kph
27/5/2015 11:46	ON	N22.18659 E113.86928	74 m	0:00:18	15 kph
27/5/2015 11:46	ON	N22.18582 E113.86921	87 m	0:00:21	15 kph
27/5/2015 11:46	ON	N22.18502 E113.86908	89 m	0:00:22	15 kph
27/5/2015 11:47	ON	N22.18428 E113.86905	82 m	0:00:20	15 kph
27/5/2015 11:47	ON	N22.18351 E113.86900	86 m	0:00:21	15 kph
27/5/2015 11:47	ON	N22.18265 E113.86892	97 m	0:00:24	15 kph
27/5/2015 11:48	ON	N22.18165 E113.86892	111 m	0:00:27	15 kph
27/5/2015 11:48	ON	N22.18085 E113.86893	89 m	0:00:22	15 kph
27/5/2015 11:49	ON	N22.17998 E113.86892	97 m	0:00:24	15 kph
27/5/2015 11:49	ON	N22.17910 E113.86897	98 m	0:00:24	15 kph
27/5/2015 11:49	ON	N22.17826 E113.86898	93 m	0:00:23	15 kph
27/5/2015 11:50	ON	N22.17754 E113.86892	80 m	0:00:20	14 kph
27/5/2015 11:50	ON	N22.17675 E113.86894	88 m	0:00:22	14 kph
27/5/2015 11:51	ON	N22.17576 E113.86895	110 m	0:00:27	15 kph
27/5/2015 11:51	ON	N22.17486 E113.86895	101 m	0:00:25	15 kph
27/5/2015 11:51	ON	N22.17401 E113.86900	94 m	0:00:23	15 kph
27/5/2015 11:52	ON	N22.17311 E113.86898	101 m	0:00:25	15 kph
27/5/2015 11:52	ON	N22.17246 E113.86893	72 m	0:00:18	14 kph
27/5/2015 11:53	ON	N22.17159 E113.86891	97 m	0:00:24	15 kph
27/5/2015 11:53	ON	N22.17081 E113.86894	86 m	0:00:21	15 kph
27/5/2015 11:53	ON	N22.17004 E113.86892	86 m	0:00:21	15 kph
27/5/2015 11:54	ON	N22.16930 E113.86891	82 m	0:00:20	15 kph
27/5/2015 11:54	ON	N22.16849 E113.86893	91 m	0:00:22	15 kph
27/5/2015 11:54	ON	N22.16767 E113.86881	91 m	0:00:23	14 kph
27/5/2015 11:55	ON	N22.16694 E113.86883	82 m	0:00:20	15 kph
27/5/2015 11:55	ON	N22.16625 E113.86887	76 m	0:00:18	15 kph
27/5/2015 11:55	ON	N22.16541 E113.86888	93 m	0:00:22	15 kph
27/5/2015 11:56	ON	N22.16462 E113.86889	88 m	0:00:21	15 kph
27/5/2015 11:56	ON	N22.16406 E113.86889	63 m	0:00:15	15 kph
27/5/2015 11:56	ON	N22.16322 E113.86894	93 m	0:00:22	15 kph
27/5/2015 11:57	ON	N22.16255 E113.86900	75 m	0:00:18	15 kph
27/5/2015 11:57	ON	N22.16209 E113.86939	65 m	0:00:15	16 kph
27/5/2015 11:57	ON	N22.16173 E113.87009	82 m	0:00:18	16 kph
27/5/2015 11:58	ON	N22.16126 E113.87103	110 m	0:00:24	17 kph
27/5/2015 11:58	ON	N22.16084 E113.87185	97 m	0:00:22	16 kph
27/5/2015 11:58	ON	N22.16033 E113.87270	104 m	0:00:24	16 kph
27/5/2015 11:59	ON	N22.15991 E113.87349	94 m	0:00:22	15 kph
27/5/2015 11:59	ON	N22.15962 E113.87438	97 m	0:00:22	16 kph
27/5/2015 11:59	ON	N22.15931 E113.87527	98 m	0:00:23	15 kph
27/5/2015 12:00	ON	N22.15899 E113.87593	76 m	0:00:18	15 kph
27/5/2015 12:00	ON	N22.15859 E113.87668	89 m	0:00:21	15 kph
27/5/2015 12:00	ON	N22.15819 E113.87749	94 m	0:00:22	15 kph
27/5/2015 12:01	ON	N22.15840 E113.87802	60 m	0:00:17	13 kph
27/5/2015 12:01	ON	N22.15899 E113.87812	66 m	0:00:18	13 kph
27/5/2015 12:01	ON	N22.15991 E113.87816	103 m	0:00:26	14 kph
27/5/2015 12:02	ON	N22.16091 E113.87813	111 m	0:00:28	14 kph
27/5/2015 12:02	ON	N22.16183 E113.87819	102 m	0:00:25	15 kph
27/5/2015 12:03	ON	N22.16282 E113.87817	111 m	0:00:27	15 kph
27/5/2015 12:03	ON	N22.16373 E113.87808	102 m	0:00:25	15 kph
27/5/2015 12:04	ON	N22.16484 E113.87808	124 m	0:00:30	15 kph
27/5/2015 12:04	ON	N22.16598 E113.87813	127 m	0:00:31	15 kph
27/5/2015 12:05	ON	N22.16694 E113.87817	107 m	0:00:26	15 kph
27/5/2015 12:05	ON	N22.16787 E113.87818	104 m	0:00:26	14 kph
27/5/2015 12:06	ON	N22.16879 E113.87813	102 m	0:00:26	14 kph

Appendix I. (cont'd)

Date & Time	EFFORT	Position	Leg Length	Leg Time	Leg Speed
27/5/2015 12:06	ON	N22.16976 E113.87812	107 m	0:00:27	14 kph
27/5/2015 12:06	ON	N22.17064 E113.87813	98 m	0:00:25	14 kph
27/5/2015 12:07	ON	N22.17159 E113.87811	105 m	0:00:27	14 kph
27/5/2015 12:07	ON	N22.17270 E113.87807	124 m	0:00:32	14 kph
27/5/2015 12:08	ON	N22.17372 E113.87806	113 m	0:00:29	14 kph
27/5/2015 12:08	ON	N22.17460 E113.87807	98 m	0:00:25	14 kph
27/5/2015 12:09	ON	N22.17527 E113.87812	75 m	0:00:19	14 kph
27/5/2015 12:09	ON	N22.17593 E113.87813	74 m	0:00:19	14 kph
27/5/2015 12:09	ON	N22.17667 E113.87813	83 m	0:00:21	14 kph
27/5/2015 12:10	ON	N22.17742 E113.87811	83 m	0:00:21	14 kph
27/5/2015 12:10	ON	N22.17840 E113.87822	110 m	0:00:27	15 kph
27/5/2015 12:10	ON	N22.17925 E113.87823	95 m	0:00:24	14 kph
27/5/2015 12:11	ON	N22.18011 E113.87815	96 m	0:00:24	14 kph
27/5/2015 12:11	ON	N22.18104 E113.87805	104 m	0:00:26	14 kph
27/5/2015 12:12	ON	N22.18188 E113.87811	94 m	0:00:23	15 kph
27/5/2015 12:12	ON	N22.18279 E113.87805	101 m	0:00:25	15 kph
27/5/2015 12:13	ON	N22.18369 E113.87801	101 m	0:00:25	15 kph
27/5/2015 12:13	ON	N22.18447 E113.87808	87 m	0:00:21	15 kph
27/5/2015 12:13	ON	N22.18513 E113.87806	74 m	0:00:18	15 kph
27/5/2015 12:14	ON	N22.18607 E113.87804	104 m	0:00:25	15 kph
27/5/2015 12:14	ON	N22.18719 E113.87807	125 m	0:00:30	15 kph
27/5/2015 12:15	ON	N22.18821 E113.87802	114 m	0:00:27	15 kph
27/5/2015 12:15	ON	N22.18943 E113.87802	135 m	0:00:32	15 kph
27/5/2015 12:16	ON	N22.19057 E113.87805	128 m	0:00:30	15 kph
27/5/2015 12:16	ON	N22.19165 E113.87808	120 m	0:00:28	15 kph
27/5/2015 12:17	ON	N22.19291 E113.87807	140 m	0:00:33	15 kph
27/5/2015 12:17	ON	N22.19396 E113.87795	117 m	0:00:27	16 kph
27/5/2015 12:17	ON	N22.19487 E113.87801	102 m	0:00:24	15 kph
27/5/2015 12:18	ON	N22.19586 E113.87798	110 m	0:00:26	15 kph
27/5/2015 12:18	ON	N22.19684 E113.87801	109 m	0:00:26	15 kph
27/5/2015 12:19	ON	N22.19792 E113.87814	122 m	0:00:29	15 kph
27/5/2015 12:19	ON	N22.19886 E113.87813	104 m	0:00:25	15 kph
27/5/2015 12:20	ON	N22.19995 E113.87798	123 m	0:00:30	15 kph
27/5/2015 12:20	ON	N22.20083 E113.87807	98 m	0:00:24	15 kph
27/5/2015 12:20	OFF	N22.20149 E113.87810	74 m	0:00:22	12 kph
27/5/2015 12:21	OFF	N22.20188 E113.87806	44 m	0:00:24	7 kph
27/5/2015 12:21	OFF	N22.20215 E113.87800	30 m	0:00:25	4 kph
27/5/2015 12:22	OFF	N22.20230 E113.87794	17 m	0:00:20	3 kph
27/5/2015 12:22	OFF	N22.20242 E113.87787	15 m	0:00:23	2 kph
27/5/2015 12:22	OFF	N22.20250 E113.87781	12 m	0:00:20	2 kph
27/5/2015 12:22	OFF	N22.20254 E113.87779	4 m	0:00:05	3 kph
27/5/2015 12:23	OFF	N22.20278 E113.87741	47 m	0:00:24	7 kph
27/5/2015 12:23	OFF	N22.20297 E113.87685	62 m	0:00:22	10 kph
27/5/2015 12:24	OFF	N22.20312 E113.87634	55 m	0:00:25	8 kph
27/5/2015 12:24	OFF	N22.20317 E113.87616	19 m	0:00:13	5 kph
27/5/2015 12:24	OFF	N22.20319 E113.87611	5 m	0:00:04	5 kph
27/5/2015 12:24	OFF	N22.20324 E113.87590	23 m	0:00:22	4 kph
27/5/2015 12:25	OFF	N22.20330 E113.87573	19 m	0:00:25	3 kph
27/5/2015 12:25	OFF	N22.20334 E113.87565	9 m	0:00:16	2 kph
27/5/2015 12:25	OFF	N22.20338 E113.87554	12 m	0:00:21	2 kph
27/5/2015 12:26	OFF	N22.20341 E113.87545	11 m	0:00:19	2 kph
27/5/2015 12:26	OFF	N22.20329 E113.87507	41 m	0:00:20	7 kph
27/5/2015 12:26	OFF	N22.20279 E113.87516	56 m	0:00:20	10 kph
27/5/2015 12:27	OFF	N22.20217 E113.87576	93 m	0:00:26	13 kph
27/5/2015 12:27	OFF	N22.20161 E113.87633	85 m	0:00:22	14 kph
27/5/2015 12:27	OFF	N22.20112 E113.87689	79 m	0:00:21	14 kph
27/5/2015 12:28	OFF	N22.20071 E113.87760	87 m	0:00:25	12 kph
27/5/2015 12:28	ON	N22.20118 E113.87798	65 m	0:00:19	12 kph
27/5/2015 12:29	ON	N22.20204 E113.87813	97 m	0:00:24	15 kph
27/5/2015 12:29	ON	N22.20303 E113.87814	111 m	0:00:27	15 kph
27/5/2015 12:29	ON	N22.20394 E113.87813	101 m	0:00:25	14 kph
27/5/2015 12:30	ON	N22.20499 E113.87807	118 m	0:00:29	15 kph
27/5/2015 12:30	ON	N22.20598 E113.87803	110 m	0:00:27	15 kph
27/5/2015 12:31	ON	N22.20710 E113.87808	124 m	0:00:31	14 kph

Appendix I. (cont'd)

Date & Time	EFFORT	Position	Leg Length	Leg Time	Leg Speed
27/5/2015 12:31	ON	N22.20775 E113.87863	93 m	0:00:24	14 kph
27/5/2015 12:32	ON	N22.20833 E113.87933	96 m	0:00:25	14 kph
27/5/2015 12:32	ON	N22.20892 E113.88007	101 m	0:00:26	14 kph
27/5/2015 12:33	ON	N22.20950 E113.88083	102 m	0:00:26	14 kph
27/5/2015 12:33	ON	N22.21005 E113.88166	106 m	0:00:27	14 kph
27/5/2015 12:33	ON	N22.21077 E113.88251	119 m	0:00:30	14 kph
27/5/2015 12:34	ON	N22.21149 E113.88334	118 m	0:00:29	15 kph
27/5/2015 12:34	ON	N22.21214 E113.88409	105 m	0:00:26	15 kph
27/5/2015 12:35	ON	N22.21278 E113.88485	106 m	0:00:26	15 kph
27/5/2015 12:35	ON	N22.21343 E113.88571	115 m	0:00:28	15 kph
27/5/2015 12:36	ON	N22.21403 E113.88661	115 m	0:00:28	15 kph
27/5/2015 12:36	ON	N22.21460 E113.88760	120 m	0:00:30	14 kph
27/5/2015 12:37	ON	N22.21437 E113.88821	68 m	0:00:20	12 kph
27/5/2015 12:37	ON	N22.21373 E113.88819	72 m	0:00:20	13 kph
27/5/2015 12:37	ON	N22.21302 E113.88814	79 m	0:00:21	14 kph
27/5/2015 12:38	ON	N22.21224 E113.88818	87 m	0:00:23	14 kph
27/5/2015 12:38	ON	N22.21134 E113.88823	100 m	0:00:26	14 kph
27/5/2015 12:39	ON	N22.21043 E113.88830	101 m	0:00:26	14 kph
27/5/2015 12:39	ON	N22.20965 E113.88830	88 m	0:00:23	14 kph
27/5/2015 12:39	ON	N22.20894 E113.88831	79 m	0:00:21	14 kph
27/5/2015 12:40	ON	N22.20809 E113.88823	94 m	0:00:25	14 kph
27/5/2015 12:40	ON	N22.20736 E113.88829	82 m	0:00:22	13 kph
27/5/2015 12:40	ON	N22.20658 E113.88832	87 m	0:00:23	14 kph
27/5/2015 12:41	ON	N22.20585 E113.88829	81 m	0:00:21	14 kph
27/5/2015 12:41	ON	N22.20507 E113.88825	88 m	0:00:23	14 kph
27/5/2015 12:42	ON	N22.20430 E113.88828	86 m	0:00:23	13 kph
27/5/2015 12:42	ON	N22.20356 E113.88831	82 m	0:00:22	13 kph
27/5/2015 12:42	ON	N22.20285 E113.88831	79 m	0:00:21	14 kph
27/5/2015 12:43	ON	N22.20194 E113.88831	101 m	0:00:27	13 kph
27/5/2015 12:43	ON	N22.20112 E113.88827	91 m	0:00:24	14 kph
27/5/2015 12:44	ON	N22.20032 E113.88830	89 m	0:00:24	13 kph
27/5/2015 12:44	ON	N22.19948 E113.88829	93 m	0:00:25	13 kph
27/5/2015 12:44	ON	N22.19872 E113.88823	85 m	0:00:23	13 kph
27/5/2015 12:45	ON	N22.19807 E113.88831	73 m	0:00:20	13 kph
27/5/2015 12:45	ON	N22.19721 E113.88829	96 m	0:00:26	13 kph
27/5/2015 12:45	ON	N22.19644 E113.88824	85 m	0:00:23	13 kph
27/5/2015 12:46	ON	N22.19543 E113.88821	113 m	0:00:30	14 kph
27/5/2015 12:46	ON	N22.19456 E113.88826	97 m	0:00:26	13 kph
27/5/2015 12:47	ON	N22.19383 E113.88824	82 m	0:00:22	13 kph
27/5/2015 12:47	ON	N22.19299 E113.88827	93 m	0:00:25	13 kph
27/5/2015 12:48	ON	N22.19200 E113.88833	111 m	0:00:30	13 kph
27/5/2015 12:48	ON	N22.19114 E113.88833	96 m	0:00:26	13 kph
27/5/2015 12:49	ON	N22.19028 E113.88831	96 m	0:00:26	13 kph
27/5/2015 12:49	ON	N22.18943 E113.88828	95 m	0:00:26	13 kph
27/5/2015 12:49	ON	N22.18851 E113.88828	102 m	0:00:28	13 kph
27/5/2015 12:50	ON	N22.18764 E113.88825	97 m	0:00:27	13 kph
27/5/2015 12:50	ON	N22.18686 E113.88827	87 m	0:00:24	13 kph
27/5/2015 12:51	ON	N22.18598 E113.88826	97 m	0:00:27	13 kph
27/5/2015 12:51	ON	N22.18521 E113.88828	86 m	0:00:24	13 kph
27/5/2015 12:52	ON	N22.18439 E113.88823	91 m	0:00:25	13 kph
27/5/2015 12:52	ON	N22.18353 E113.88826	97 m	0:00:26	13 kph
27/5/2015 12:52	ON	N22.18266 E113.88822	97 m	0:00:26	13 kph
27/5/2015 12:53	ON	N22.18178 E113.88822	97 m	0:00:26	13 kph
27/5/2015 12:53	ON	N22.18102 E113.88822	85 m	0:00:23	13 kph
27/5/2015 12:54	ON	N22.18015 E113.88827	96 m	0:00:26	13 kph
27/5/2015 12:54	ON	N22.17925 E113.88823	101 m	0:00:27	13 kph
27/5/2015 12:55	ON	N22.17847 E113.88825	87 m	0:00:23	14 kph
27/5/2015 12:55	ON	N22.17761 E113.88828	95 m	0:00:25	14 kph
27/5/2015 12:55	ON	N22.17667 E113.88829	105 m	0:00:28	14 kph
27/5/2015 12:56	ON	N22.17579 E113.88826	98 m	0:00:26	14 kph
27/5/2015 12:56	ON	N22.17503 E113.88820	85 m	0:00:23	13 kph
27/5/2015 12:57	ON	N22.17416 E113.88821	97 m	0:00:26	13 kph
27/5/2015 12:57	ON	N22.17343 E113.88822	82 m	0:00:22	13 kph
27/5/2015 12:57	ON	N22.17264 E113.88829	88 m	0:00:23	14 kph

Appendix I. (cont'd)

Date & Time	EFFORT	Position	Leg Length	Leg Time	Leg Speed
27/5/2015 12:58	ON	N22.17196 E113.88824	76 m	0:00:21	13 kph
27/5/2015 12:58	ON	N22.17115 E113.88825	91 m	0:00:24	14 kph
27/5/2015 12:59	ON	N22.17038 E113.88830	86 m	0:00:23	13 kph
27/5/2015 12:59	ON	N22.16955 E113.88837	92 m	0:00:24	14 kph
27/5/2015 12:59	ON	N22.16872 E113.88831	93 m	0:00:25	13 kph
27/5/2015 13:00	ON	N22.16791 E113.88822	91 m	0:00:24	14 kph
27/5/2015 13:00	ON	N22.16703 E113.88833	99 m	0:00:25	14 kph
27/5/2015 13:01	ON	N22.16617 E113.88832	95 m	0:00:25	14 kph
27/5/2015 13:01	ON	N22.16535 E113.88831	92 m	0:00:24	14 kph
27/5/2015 13:01	ON	N22.16467 E113.88830	76 m	0:00:20	14 kph
27/5/2015 13:02	ON	N22.16396 E113.88828	79 m	0:00:20	14 kph
27/5/2015 13:02	ON	N22.16304 E113.88832	103 m	0:00:26	14 kph
27/5/2015 13:02	ON	N22.16221 E113.88825	92 m	0:00:24	14 kph
27/5/2015 13:03	ON	N22.16130 E113.88828	102 m	0:00:26	14 kph
27/5/2015 13:03	ON	N22.16036 E113.88826	104 m	0:00:27	14 kph
27/5/2015 13:04	ON	N22.15961 E113.88821	84 m	0:00:22	14 kph
27/5/2015 13:04	ON	N22.15880 E113.88830	90 m	0:00:23	14 kph
27/5/2015 13:05	ON	N22.15800 E113.88828	89 m	0:00:23	14 kph
27/5/2015 13:05	ON	N22.15733 E113.88825	74 m	0:00:19	14 kph
27/5/2015 13:05	ON	N22.15660 E113.88824	82 m	0:00:21	14 kph
27/5/2015 13:06	ON	N22.15586 E113.88821	82 m	0:00:21	14 kph
27/5/2015 13:06	ON	N22.15513 E113.88829	83 m	0:00:21	14 kph
27/5/2015 13:06	ON	N22.15431 E113.88839	92 m	0:00:23	14 kph
27/5/2015 13:07	ON	N22.15354 E113.88833	86 m	0:00:22	14 kph
27/5/2015 13:07	ON	N22.15274 E113.88844	90 m	0:00:23	14 kph
27/5/2015 13:07	ON	N22.15198 E113.88833	85 m	0:00:22	14 kph
27/5/2015 13:08	ON	N22.15116 E113.88837	91 m	0:00:23	14 kph
27/5/2015 13:08	ON	N22.15068 E113.88857	57 m	0:00:15	14 kph
27/5/2015 13:08	ON	N22.15027 E113.88923	83 m	0:00:20	15 kph
27/5/2015 13:09	ON	N22.15007 E113.89013	96 m	0:00:22	16 kph
27/5/2015 13:09	ON	N22.15006 E113.89104	93 m	0:00:21	16 kph
27/5/2015 13:09	ON	N22.14996 E113.89194	94 m	0:00:21	16 kph
27/5/2015 13:10	ON	N22.14987 E113.89240	48 m	0:00:11	16 kph
27/5/2015 13:10	ON	N22.14967 E113.89340	105 m	0:00:24	16 kph
27/5/2015 13:10	ON	N22.14946 E113.89428	94 m	0:00:22	15 kph
27/5/2015 13:10	ON	N22.14941 E113.89461	35 m	0:00:08	16 kph
27/5/2015 13:11	ON	N22.14929 E113.89561	104 m	0:00:24	16 kph
27/5/2015 13:11	ON	N22.14917 E113.89665	108 m	0:00:25	16 kph
27/5/2015 13:12	ON	N22.14943 E113.89722	66 m	0:00:19	12 kph
27/5/2015 13:12	ON	N22.15012 E113.89721	76 m	0:00:20	14 kph
27/5/2015 13:12	ON	N22.15084 E113.89729	81 m	0:00:20	15 kph
27/5/2015 13:13	ON	N22.15171 E113.89726	96 m	0:00:24	14 kph
27/5/2015 13:13	ON	N22.15247 E113.89724	85 m	0:00:21	15 kph
27/5/2015 13:13	ON	N22.15316 E113.89743	79 m	0:00:19	15 kph
27/5/2015 13:14	ON	N22.15384 E113.89768	80 m	0:00:20	14 kph
27/5/2015 13:14	ON	N22.15464 E113.89748	91 m	0:00:23	14 kph
27/5/2015 13:14	ON	N22.15551 E113.89729	98 m	0:00:24	15 kph
27/5/2015 13:15	ON	N22.15635 E113.89728	94 m	0:00:23	15 kph
27/5/2015 13:15	ON	N22.15716 E113.89724	90 m	0:00:22	15 kph
27/5/2015 13:16	ON	N22.15800 E113.89716	94 m	0:00:23	15 kph
27/5/2015 13:16	ON	N22.15885 E113.89722	95 m	0:00:23	15 kph
27/5/2015 13:16	ON	N22.15982 E113.89718	108 m	0:00:26	15 kph
27/5/2015 13:17	ON	N22.16089 E113.89712	120 m	0:00:29	15 kph
27/5/2015 13:17	ON	N22.16204 E113.89717	128 m	0:00:31	15 kph
27/5/2015 13:18	ON	N22.16303 E113.89717	111 m	0:00:27	15 kph
27/5/2015 13:18	ON	N22.16410 E113.89720	118 m	0:00:29	15 kph
27/5/2015 13:19	ON	N22.16516 E113.89719	119 m	0:00:29	15 kph
27/5/2015 13:19	ON	N22.16614 E113.89721	109 m	0:00:26	15 kph
27/5/2015 13:20	ON	N22.16719 E113.89724	117 m	0:00:28	15 kph
27/5/2015 13:20	ON	N22.16828 E113.89723	121 m	0:00:29	15 kph
27/5/2015 13:21	ON	N22.16941 E113.89722	125 m	0:00:30	15 kph
27/5/2015 13:21	ON	N22.17042 E113.89720	113 m	0:00:27	15 kph
27/5/2015 13:22	ON	N22.17133 E113.89715	101 m	0:00:24	15 kph
27/5/2015 13:22	ON	N22.17216 E113.89709	93 m	0:00:22	15 kph

Appendix I. (cont'd)

Date & Time	EFFORT	Position	Leg Length	Leg Time	Leg Speed
27/5/2015 13:22	ON	N22.17312 E113.89721	107 m	0:00:25	15 kph
27/5/2015 13:23	ON	N22.17422 E113.89724	123 m	0:00:29	15 kph
27/5/2015 13:23	ON	N22.17512 E113.89729	99 m	0:00:23	16 kph
27/5/2015 13:24	ON	N22.17623 E113.89725	124 m	0:00:29	15 kph
27/5/2015 13:24	ON	N22.17738 E113.89721	128 m	0:00:30	15 kph
27/5/2015 13:25	ON	N22.17866 E113.89719	143 m	0:00:33	16 kph
27/5/2015 13:25	ON	N22.17984 E113.89723	131 m	0:00:30	16 kph
27/5/2015 13:26	ON	N22.18090 E113.89730	119 m	0:00:27	16 kph
27/5/2015 13:26	ON	N22.18205 E113.89726	128 m	0:00:29	16 kph
27/5/2015 13:27	ON	N22.18314 E113.89719	121 m	0:00:28	16 kph
27/5/2015 13:27	ON	N22.18408 E113.89717	105 m	0:00:24	16 kph
27/5/2015 13:28	ON	N22.18514 E113.89714	118 m	0:00:27	16 kph
27/5/2015 13:28	ON	N22.18620 E113.89718	118 m	0:00:27	16 kph
27/5/2015 13:28	ON	N22.18731 E113.89720	123 m	0:00:28	16 kph
27/5/2015 13:29	ON	N22.18850 E113.89715	133 m	0:00:30	16 kph
27/5/2015 13:29	ON	N22.18966 E113.89723	129 m	0:00:29	16 kph
27/5/2015 13:30	ON	N22.19068 E113.89717	114 m	0:00:26	16 kph
27/5/2015 13:30	ON	N22.19176 E113.89718	120 m	0:00:27	16 kph
27/5/2015 13:31	ON	N22.19276 E113.89721	112 m	0:00:25	16 kph
27/5/2015 13:31	ON	N22.19377 E113.89722	111 m	0:00:25	16 kph
27/5/2015 13:31	ON	N22.19456 E113.89727	89 m	0:00:20	16 kph
27/5/2015 13:32	ON	N22.19549 E113.89721	103 m	0:00:23	16 kph
27/5/2015 13:32	ON	N22.19662 E113.89725	127 m	0:00:28	16 kph
27/5/2015 13:33	ON	N22.19764 E113.89726	113 m	0:00:25	16 kph
27/5/2015 13:33	ON	N22.19861 E113.89726	108 m	0:00:24	16 kph
27/5/2015 13:34	ON	N22.19954 E113.89725	104 m	0:00:23	16 kph
27/5/2015 13:34	ON	N22.20055 E113.89727	112 m	0:00:25	16 kph
27/5/2015 13:34	ON	N22.20146 E113.89728	102 m	0:00:23	16 kph
27/5/2015 13:35	ON	N22.20258 E113.89729	124 m	0:00:28	16 kph
27/5/2015 13:35	ON	N22.20374 E113.89725	129 m	0:00:29	16 kph
27/5/2015 13:36	ON	N22.20484 E113.89726	123 m	0:00:28	16 kph
27/5/2015 13:36	ON	N22.20594 E113.89733	123 m	0:00:28	16 kph
27/5/2015 13:37	ON	N22.20688 E113.89729	104 m	0:00:24	16 kph
27/5/2015 13:37	ON	N22.20788 E113.89723	111 m	0:00:26	15 kph
27/5/2015 13:38	ON	N22.20899 E113.89721	124 m	0:00:29	15 kph
27/5/2015 13:38	ON	N22.21010 E113.89715	124 m	0:00:30	15 kph
27/5/2015 13:39	ON	N22.21136 E113.89724	140 m	0:00:34	15 kph
27/5/2015 13:39	ON	N22.21248 E113.89731	125 m	0:00:31	15 kph
27/5/2015 13:40	ON	N22.21344 E113.89749	109 m	0:00:28	14 kph
27/5/2015 13:40	ON	N22.21342 E113.89795	47 m	0:00:16	11 kph
27/5/2015 13:40	ON	N22.21292 E113.89839	72 m	0:00:19	14 kph
27/5/2015 13:40	ON	N22.21245 E113.89889	73 m	0:00:19	14 kph
27/5/2015 13:41	ON	N22.21205 E113.89940	70 m	0:00:18	14 kph
27/5/2015 13:41	ON	N22.21159 E113.89991	73 m	0:00:19	14 kph
27/5/2015 13:41	ON	N22.21117 E113.90044	72 m	0:00:19	14 kph
27/5/2015 13:42	ON	N22.21063 E113.90111	91 m	0:00:24	14 kph
27/5/2015 13:42	ON	N22.20998 E113.90186	106 m	0:00:28	14 kph
27/5/2015 13:43	ON	N22.20947 E113.90250	87 m	0:00:23	14 kph
27/5/2015 13:43	ON	N22.20897 E113.90320	91 m	0:00:24	14 kph
27/5/2015 13:43	ON	N22.20845 E113.90383	87 m	0:00:23	14 kph
27/5/2015 13:44	ON	N22.20785 E113.90455	100 m	0:00:26	14 kph
27/5/2015 13:44	ON	N22.20714 E113.90542	119 m	0:00:31	14 kph
27/5/2015 13:45	ON	N22.20667 E113.90607	85 m	0:00:22	14 kph
27/5/2015 13:45	ON	N22.20615 E113.90686	100 m	0:00:26	14 kph
27/5/2015 13:46	ON	N22.20578 E113.90757	84 m	0:00:22	14 kph
27/5/2015 13:46	ON	N22.20510 E113.90780	80 m	0:00:22	13 kph
27/5/2015 13:46	ON	N22.20440 E113.90771	79 m	0:00:21	13 kph
27/5/2015 13:47	ON	N22.20367 E113.90786	83 m	0:00:22	14 kph
27/5/2015 13:47	ON	N22.20291 E113.90787	84 m	0:00:23	13 kph
27/5/2015 13:47	ON	N22.20213 E113.90791	88 m	0:00:24	13 kph
27/5/2015 13:48	ON	N22.20126 E113.90791	96 m	0:00:26	13 kph
27/5/2015 13:48	ON	N22.20066 E113.90795	67 m	0:00:21	12 kph
27/5/2015 13:49	ON	N22.19988 E113.90799	87 m	0:00:25	13 kph
27/5/2015 13:49	ON	N22.19901 E113.90793	97 m	0:00:27	13 kph

Appendix I. (cont'd)

Date & Time	EFFORT	Position	Leg Length	Leg Time	Leg Speed
27/5/2015 13:50	ON	N22.19804 E113.90793	108 m	0:00:30	13 kph
27/5/2015 13:50	ON	N22.19733 E113.90793	79 m	0:00:22	13 kph
27/5/2015 13:50	ON	N22.19655 E113.90794	87 m	0:00:24	13 kph
27/5/2015 13:51	ON	N22.19580 E113.90791	83 m	0:00:23	13 kph
27/5/2015 13:51	ON	N22.19493 E113.90786	97 m	0:00:27	13 kph
27/5/2015 13:51	ON	N22.19438 E113.90787	62 m	0:00:20	11 kph
27/5/2015 13:52	ON	N22.19363 E113.90782	84 m	0:00:23	13 kph
27/5/2015 13:52	ON	N22.19287 E113.90780	85 m	0:00:23	13 kph
27/5/2015 13:53	ON	N22.19213 E113.90776	82 m	0:00:23	13 kph
27/5/2015 13:53	ON	N22.19127 E113.90748	100 m	0:00:28	13 kph
27/5/2015 13:53	ON	N22.19068 E113.90703	80 m	0:00:22	13 kph
27/5/2015 13:54	ON	N22.18995 E113.90635	108 m	0:00:30	13 kph
27/5/2015 13:54	ON	N22.18920 E113.90572	106 m	0:00:30	13 kph
27/5/2015 13:55	ON	N22.18852 E113.90524	90 m	0:00:26	12 kph
27/5/2015 13:55	ON	N22.18772 E113.90486	98 m	0:00:28	13 kph
27/5/2015 13:56	ON	N22.18683 E113.90451	105 m	0:00:30	13 kph
27/5/2015 13:56	ON	N22.18595 E113.90421	102 m	0:00:29	13 kph
27/5/2015 13:57	ON	N22.18496 E113.90399	112 m	0:00:32	13 kph
27/5/2015 13:57	ON	N22.18404 E113.90378	105 m	0:00:30	13 kph
27/5/2015 13:58	ON	N22.18310 E113.90359	107 m	0:00:30	13 kph
27/5/2015 13:58	ON	N22.18218 E113.90346	103 m	0:00:29	13 kph
27/5/2015 13:59	ON	N22.18115 E113.90344	115 m	0:00:32	13 kph
27/5/2015 13:59	ON	N22.18030 E113.90360	95 m	0:00:26	13 kph
27/5/2015 14:00	ON	N22.17949 E113.90377	92 m	0:00:25	13 kph
27/5/2015 14:00	ON	N22.17848 E113.90405	115 m	0:00:31	13 kph
27/5/2015 14:01	ON	N22.17774 E113.90456	99 m	0:00:26	14 kph
27/5/2015 14:01	ON	N22.17698 E113.90529	113 m	0:00:30	14 kph
27/5/2015 14:02	ON	N22.17628 E113.90605	110 m	0:00:29	14 kph
27/5/2015 14:02	ON	N22.17565 E113.90690	112 m	0:00:29	14 kph
27/5/2015 14:03	ON	N22.17487 E113.90779	126 m	0:00:32	14 kph
27/5/2015 14:03	ON	N22.17400 E113.90856	125 m	0:00:32	14 kph
27/5/2015 14:04	ON	N22.17316 E113.90858	94 m	0:00:26	13 kph
27/5/2015 14:04	ON	N22.17215 E113.90825	118 m	0:00:32	13 kph
27/5/2015 14:05	ON	N22.17113 E113.90785	121 m	0:00:33	13 kph
27/5/2015 14:05	ON	N22.17018 E113.90727	121 m	0:00:33	13 kph
27/5/2015 14:06	ON	N22.16943 E113.90662	107 m	0:00:30	13 kph
27/5/2015 14:06	ON	N22.16861 E113.90577	127 m	0:00:35	13 kph
27/5/2015 14:07	ON	N22.16804 E113.90510	93 m	0:00:26	13 kph
27/5/2015 14:07	ON	N22.16732 E113.90419	123 m	0:00:34	13 kph
27/5/2015 14:08	ON	N22.16677 E113.90343	100 m	0:00:28	13 kph
27/5/2015 14:08	ON	N22.16616 E113.90241	125 m	0:00:35	13 kph
27/5/2015 14:09	ON	N22.16552 E113.90147	121 m	0:00:34	13 kph
27/5/2015 14:09	ON	N22.16496 E113.90073	98 m	0:00:28	13 kph
27/5/2015 14:10	ON	N22.16440 E113.90003	96 m	0:00:27	13 kph
27/5/2015 14:10	ON	N22.16382 E113.89934	96 m	0:00:27	13 kph
27/5/2015 14:11	ON	N22.16328 E113.89882	80 m	0:00:23	13 kph
27/5/2015 14:11	ON	N22.16263 E113.89842	84 m	0:00:24	13 kph
27/5/2015 14:12	ON	N22.16190 E113.89813	85 m	0:00:24	13 kph
27/5/2015 14:12	ON	N22.16111 E113.89791	91 m	0:00:26	13 kph
27/5/2015 14:12	ON	N22.16028 E113.89783	93 m	0:00:26	13 kph
27/5/2015 14:13	ON	N22.15933 E113.89801	106 m	0:00:29	13 kph
27/5/2015 14:13	ON	N22.15850 E113.89826	97 m	0:00:26	13 kph
27/5/2015 14:14	ON	N22.15782 E113.89875	91 m	0:00:24	14 kph
27/5/2015 14:14	ON	N22.15726 E113.89932	86 m	0:00:22	14 kph
27/5/2015 14:14	ON	N22.15680 E113.89989	78 m	0:00:20	14 kph
27/5/2015 14:15	ON	N22.15634 E113.90044	76 m	0:00:19	14 kph
27/5/2015 14:15	ON	N22.15587 E113.90103	81 m	0:00:20	15 kph
27/5/2015 14:15	ON	N22.15548 E113.90174	86 m	0:00:21	15 kph
27/5/2015 14:16	ON	N22.15525 E113.90249	81 m	0:00:20	15 kph
27/5/2015 14:16	ON	N22.15512 E113.90341	96 m	0:00:23	15 kph
27/5/2015 14:16	ON	N22.15517 E113.90414	76 m	0:00:18	15 kph
27/5/2015 14:17	ON	N22.15528 E113.90483	72 m	0:00:17	15 kph
27/5/2015 14:17	ON	N22.15545 E113.90549	71 m	0:00:17	15 kph
27/5/2015 14:17	ON	N22.15569 E113.90627	85 m	0:00:20	15 kph

Appendix I. (cont'd)

Date & Time	EFFORT	Position	Leg Length	Leg Time	Leg Speed
27/5/2015 14:18	ON	N22.15591 E113.90710	89 m	0:00:21	15 kph
27/5/2015 14:18	ON	N22.15591 E113.90781	73 m	0:00:19	14 kph
27/5/2015 14:18	ON	N22.15535 E113.90815	72 m	0:00:20	13 kph
27/5/2015 14:19	ON	N22.15461 E113.90813	82 m	0:00:22	13 kph
27/5/2015 14:19	ON	N22.15381 E113.90800	90 m	0:00:24	13 kph
27/5/2015 14:20	ON	N22.15302 E113.90802	89 m	0:00:23	14 kph
27/5/2015 14:20	ON	N22.15215 E113.90791	97 m	0:00:26	13 kph
27/5/2015 14:20	ON	N22.15158 E113.90795	64 m	0:00:17	14 kph
27/5/2015 14:21	ON	N22.15088 E113.90789	78 m	0:00:21	13 kph
27/5/2015 14:21	ON	N22.15007 E113.90793	91 m	0:00:24	14 kph
27/5/2015 14:21	ON	N22.14944 E113.90787	70 m	0:00:19	13 kph
27/5/2015 14:22	ON	N22.14873 E113.90796	79 m	0:00:21	14 kph
27/5/2015 14:22	ON	N22.14805 E113.90802	76 m	0:00:20	14 kph
27/5/2015 14:22	ON	N22.14737 E113.90788	77 m	0:00:21	13 kph
27/5/2015 14:23	ON	N22.14669 E113.90783	76 m	0:00:20	14 kph
27/5/2015 14:23	ON	N22.14603 E113.90790	74 m	0:00:19	14 kph
27/5/2015 14:23	ON	N22.14519 E113.90789	93 m	0:00:24	14 kph
27/5/2015 14:24	ON	N22.14432 E113.90798	98 m	0:00:25	14 kph
27/5/2015 14:24	ON	N22.14352 E113.90789	89 m	0:00:23	14 kph
27/5/2015 14:24	ON	N22.14285 E113.90797	74 m	0:00:19	14 kph
27/5/2015 14:25	ON	N22.14227 E113.90826	71 m	0:00:19	13 kph
27/5/2015 14:25	ON	N22.14206 E113.90900	80 m	0:00:20	14 kph
27/5/2015 14:25	ON	N22.14212 E113.90969	71 m	0:00:17	15 kph
27/5/2015 14:26	ON	N22.14215 E113.91030	64 m	0:00:15	15 kph
27/5/2015 14:26	ON	N22.14225 E113.91103	76 m	0:00:18	15 kph
27/5/2015 14:26	ON	N22.14230 E113.91173	72 m	0:00:17	15 kph
27/5/2015 14:27	ON	N22.14226 E113.91260	90 m	0:00:21	15 kph
27/5/2015 14:27	ON	N22.14225 E113.91334	77 m	0:00:18	15 kph
27/5/2015 14:27	ON	N22.14224 E113.91391	59 m	0:00:14	15 kph
27/5/2015 14:27	ON	N22.14222 E113.91468	79 m	0:00:19	15 kph
27/5/2015 14:28	ON	N22.14221 E113.91542	76 m	0:00:18	15 kph
27/5/2015 14:28	ON	N22.14218 E113.91616	76 m	0:00:18	15 kph
27/5/2015 14:28	ON	N22.14218 E113.91684	70 m	0:00:17	15 kph
27/5/2015 14:29	ON	N22.14224 E113.91749	67 m	0:00:17	14 kph
27/5/2015 14:29	ON	N22.14281 E113.91777	70 m	0:00:19	13 kph
27/5/2015 14:29	ON	N22.14366 E113.91782	95 m	0:00:23	15 kph
27/5/2015 14:30	ON	N22.14439 E113.91788	82 m	0:00:20	15 kph
27/5/2015 14:30	ON	N22.14534 E113.91787	106 m	0:00:26	15 kph
27/5/2015 14:30	ON	N22.14615 E113.91782	90 m	0:00:22	15 kph
27/5/2015 14:31	ON	N22.14694 E113.91781	89 m	0:00:22	14 kph
27/5/2015 14:31	ON	N22.14780 E113.91780	96 m	0:00:24	14 kph
27/5/2015 14:32	ON	N22.14879 E113.91767	111 m	0:00:28	14 kph
27/5/2015 14:32	ON	N22.14963 E113.91776	94 m	0:00:23	15 kph
27/5/2015 14:33	ON	N22.15060 E113.91793	109 m	0:00:27	15 kph
27/5/2015 14:33	ON	N22.15131 E113.91784	80 m	0:00:20	14 kph
27/5/2015 14:33	ON	N22.15212 E113.91783	90 m	0:00:22	15 kph
27/5/2015 14:34	ON	N22.15290 E113.91794	87 m	0:00:21	15 kph
27/5/2015 14:34	ON	N22.15363 E113.91795	82 m	0:00:20	15 kph
27/5/2015 14:34	ON	N22.15463 E113.91793	111 m	0:00:27	15 kph
27/5/2015 14:35	ON	N22.15560 E113.91799	108 m	0:00:26	15 kph
27/5/2015 14:35	ON	N22.15631 E113.91808	80 m	0:00:19	15 kph
27/5/2015 14:35	ON	N22.15706 E113.91809	84 m	0:00:20	15 kph
27/5/2015 14:36	ON	N22.15789 E113.91806	92 m	0:00:22	15 kph
27/5/2015 14:36	ON	N22.15871 E113.91811	91 m	0:00:22	15 kph
27/5/2015 14:37	ON	N22.15945 E113.91827	85 m	0:00:20	15 kph
27/5/2015 14:37	ON	N22.16031 E113.91851	98 m	0:00:23	15 kph
27/5/2015 14:37	ON	N22.16136 E113.91876	120 m	0:00:28	15 kph
27/5/2015 14:38	ON	N22.16245 E113.91899	124 m	0:00:29	15 kph
27/5/2015 14:38	ON	N22.16343 E113.91913	111 m	0:00:26	15 kph
27/5/2015 14:39	ON	N22.16441 E113.91927	110 m	0:00:26	15 kph
27/5/2015 14:39	ON	N22.16532 E113.91938	102 m	0:00:24	15 kph
27/5/2015 14:39	ON	N22.16617 E113.91942	94 m	0:00:22	15 kph
27/5/2015 14:40	ON	N22.16728 E113.91949	124 m	0:00:29	15 kph
27/5/2015 14:40	ON	N22.16830 E113.91955	114 m	0:00:27	15 kph

Appendix I. (cont'd)

Date & Time	EFFORT	Position	Leg Length	Leg Time	Leg Speed
27/5/2015 14:41	ON	N22.16928 E113.91963	109 m	0:00:26	15 kph
27/5/2015 14:41	ON	N22.17040 E113.91963	125 m	0:00:30	15 kph
27/5/2015 14:42	ON	N22.17128 E113.91979	100 m	0:00:24	15 kph
27/5/2015 14:42	ON	N22.17217 E113.92008	103 m	0:00:25	15 kph
27/5/2015 14:43	ON	N22.17310 E113.92032	106 m	0:00:26	15 kph
27/5/2015 14:43	ON	N22.17402 E113.92062	107 m	0:00:26	15 kph
27/5/2015 14:43	ON	N22.17479 E113.92089	91 m	0:00:22	15 kph
27/5/2015 14:44	ON	N22.17570 E113.92123	107 m	0:00:26	15 kph
27/5/2015 14:44	ON	N22.17652 E113.92152	96 m	0:00:23	15 kph
27/5/2015 14:45	ON	N22.17742 E113.92182	104 m	0:00:25	15 kph
27/5/2015 14:45	ON	N22.17826 E113.92200	96 m	0:00:23	15 kph
27/5/2015 14:45	ON	N22.17921 E113.92209	106 m	0:00:25	15 kph
27/5/2015 14:46	ON	N22.18009 E113.92209	98 m	0:00:23	15 kph
27/5/2015 14:46	ON	N22.18095 E113.92184	99 m	0:00:23	15 kph
27/5/2015 14:47	ON	N22.18189 E113.92134	117 m	0:00:27	16 kph
27/5/2015 14:47	ON	N22.18269 E113.92076	107 m	0:00:25	15 kph
27/5/2015 14:47	ON	N22.18347 E113.92010	110 m	0:00:26	15 kph
27/5/2015 14:48	ON	N22.18408 E113.91943	97 m	0:00:23	15 kph
27/5/2015 14:48	ON	N22.18478 E113.91864	112 m	0:00:27	15 kph
27/5/2015 14:49	ON	N22.18551 E113.91789	112 m	0:00:27	15 kph
27/5/2015 14:49	ON	N22.18621 E113.91788	79 m	0:00:20	14 kph
27/5/2015 14:50	ON	N22.18713 E113.91792	102 m	0:00:25	15 kph
27/5/2015 14:50	ON	N22.18805 E113.91791	103 m	0:00:25	15 kph
27/5/2015 14:50	ON	N22.18904 E113.91788	110 m	0:00:27	15 kph
27/5/2015 14:51	ON	N22.19007 E113.91788	115 m	0:00:28	15 kph
27/5/2015 14:51	ON	N22.19111 E113.91796	116 m	0:00:28	15 kph
27/5/2015 14:52	ON	N22.19207 E113.91795	107 m	0:00:26	15 kph
27/5/2015 14:52	ON	N22.19311 E113.91795	116 m	0:00:28	15 kph
27/5/2015 14:53	ON	N22.19411 E113.91802	111 m	0:00:27	15 kph
27/5/2015 14:53	ON	N22.19507 E113.91804	107 m	0:00:26	15 kph
27/5/2015 14:54	ON	N22.19614 E113.91805	119 m	0:00:29	15 kph
27/5/2015 14:54	ON	N22.19717 E113.91798	114 m	0:00:28	15 kph
27/5/2015 14:54	ON	N22.19812 E113.91796	106 m	0:00:26	15 kph
27/5/2015 14:55	ON	N22.19901 E113.91796	99 m	0:00:25	14 kph
27/5/2015 14:55	ON	N22.19994 E113.91793	104 m	0:00:26	14 kph
27/5/2015 14:56	ON	N22.20091 E113.91793	107 m	0:00:27	14 kph
27/5/2015 14:56	ON	N22.20189 E113.91797	110 m	0:00:28	14 kph
27/5/2015 14:57	ON	N22.20270 E113.91801	90 m	0:00:23	14 kph
27/5/2015 14:57	ON	N22.20376 E113.91799	118 m	0:00:30	14 kph
27/5/2015 14:58	ON	N22.20474 E113.91792	109 m	0:00:28	14 kph
27/5/2015 14:58	ON	N22.20527 E113.91834	73 m	0:00:20	13 kph
27/5/2015 14:58	ON	N22.20533 E113.91915	84 m	0:00:20	15 kph
27/5/2015 14:59	ON	N22.20534 E113.91981	68 m	0:00:16	15 kph
27/5/2015 14:59	ON	N22.20537 E113.92034	55 m	0:00:13	15 kph
27/5/2015 14:59	ON	N22.20538 E113.92108	76 m	0:00:18	15 kph
27/5/2015 14:59	ON	N22.20539 E113.92182	75 m	0:00:18	15 kph
27/5/2015 15:00	ON	N22.20539 E113.92267	88 m	0:00:21	15 kph
27/5/2015 15:00	ON	N22.20536 E113.92342	77 m	0:00:19	15 kph
27/5/2015 15:00	ON	N22.20538 E113.92409	70 m	0:00:17	15 kph
27/5/2015 15:01	ON	N22.20542 E113.92499	92 m	0:00:22	15 kph
27/5/2015 15:01	ON	N22.20547 E113.92566	70 m	0:00:17	15 kph
27/5/2015 15:01	ON	N22.20552 E113.92629	65 m	0:00:16	15 kph
27/5/2015 15:02	ON	N22.20557 E113.92708	82 m	0:00:20	15 kph
27/5/2015 15:02	ON	N22.20518 E113.92762	70 m	0:00:19	13 kph
27/5/2015 15:02	ON	N22.20454 E113.92764	71 m	0:00:19	14 kph
27/5/2015 15:03	ON	N22.20367 E113.92760	97 m	0:00:25	14 kph
27/5/2015 15:03	ON	N22.20286 E113.92763	89 m	0:00:23	14 kph
27/5/2015 15:03	ON	N22.20201 E113.92758	95 m	0:00:24	14 kph
27/5/2015 15:04	ON	N22.20134 E113.92761	75 m	0:00:19	14 kph
27/5/2015 15:04	ON	N22.20059 E113.92759	83 m	0:00:21	14 kph
27/5/2015 15:04	ON	N22.19981 E113.92755	87 m	0:00:22	14 kph
27/5/2015 15:05	ON	N22.19915 E113.92754	74 m	0:00:19	14 kph
27/5/2015 15:05	ON	N22.19841 E113.92759	83 m	0:00:21	14 kph
27/5/2015 15:05	ON	N22.19770 E113.92758	78 m	0:00:20	14 kph

Appendix I. (cont'd)

Date & Time	EFFORT	Position	Leg Length	Leg Time	Leg Speed
27/5/2015 15:06	ON	N22.19693 E113.92760	86 m	0:00:22	14 kph
27/5/2015 15:06	ON	N22.19612 E113.92763	90 m	0:00:23	14 kph
27/5/2015 15:07	ON	N22.19543 E113.92765	77 m	0:00:20	14 kph
27/5/2015 15:07	ON	N22.19459 E113.92760	93 m	0:00:24	14 kph
27/5/2015 15:07	ON	N22.19376 E113.92761	93 m	0:00:24	14 kph
27/5/2015 15:08	ON	N22.19316 E113.92757	66 m	0:00:17	14 kph
27/5/2015 15:08	ON	N22.19251 E113.92753	73 m	0:00:19	14 kph
27/5/2015 15:08	ON	N22.19175 E113.92755	84 m	0:00:22	14 kph
27/5/2015 15:09	ON	N22.19096 E113.92749	88 m	0:00:23	14 kph
27/5/2015 15:09	ON	N22.19031 E113.92752	73 m	0:00:19	14 kph
27/5/2015 15:09	ON	N22.18965 E113.92755	73 m	0:00:19	14 kph
27/5/2015 15:10	ON	N22.18887 E113.92757	87 m	0:00:22	14 kph
27/5/2015 15:10	ON	N22.18814 E113.92761	82 m	0:00:21	14 kph
27/5/2015 15:10	ON	N22.18736 E113.92758	87 m	0:00:23	14 kph
27/5/2015 15:11	ON	N22.18664 E113.92757	80 m	0:00:21	14 kph
27/5/2015 15:11	ON	N22.18596 E113.92759	76 m	0:00:20	14 kph
27/5/2015 15:11	ON	N22.18521 E113.92759	84 m	0:00:22	14 kph
27/5/2015 15:12	ON	N22.18440 E113.92765	90 m	0:00:24	14 kph
27/5/2015 15:12	ON	N22.18368 E113.92768	80 m	0:00:21	14 kph
27/5/2015 15:13	ON	N22.18292 E113.92769	85 m	0:00:22	14 kph
27/5/2015 15:13	ON	N22.18219 E113.92768	81 m	0:00:21	14 kph
27/5/2015 15:13	ON	N22.18136 E113.92764	92 m	0:00:24	14 kph
27/5/2015 15:14	ON	N22.18065 E113.92770	80 m	0:00:21	14 kph
27/5/2015 15:14	ON	N22.17989 E113.92779	86 m	0:00:23	13 kph
27/5/2015 15:14	ON	N22.17920 E113.92776	76 m	0:00:20	14 kph
27/5/2015 15:15	ON	N22.17856 E113.92768	72 m	0:00:19	14 kph
27/5/2015 15:15	ON	N22.17781 E113.92765	83 m	0:00:22	14 kph
27/5/2015 15:15	ON	N22.17708 E113.92771	82 m	0:00:22	13 kph
27/5/2015 15:16	ON	N22.17636 E113.92767	80 m	0:00:21	14 kph
27/5/2015 15:16	ON	N22.17570 E113.92761	73 m	0:00:19	14 kph
27/5/2015 15:16	ON	N22.17500 E113.92763	78 m	0:00:20	14 kph
27/5/2015 15:17	ON	N22.17436 E113.92762	72 m	0:00:19	14 kph
27/5/2015 15:17	ON	N22.17359 E113.92755	85 m	0:00:22	14 kph
27/5/2015 15:17	ON	N22.17282 E113.92755	86 m	0:00:22	14 kph
27/5/2015 15:18	ON	N22.17193 E113.92754	99 m	0:00:25	14 kph
27/5/2015 15:18	ON	N22.17116 E113.92750	86 m	0:00:22	14 kph
27/5/2015 15:19	ON	N22.17049 E113.92750	74 m	0:00:19	14 kph
27/5/2015 15:19	ON	N22.16980 E113.92753	77 m	0:00:20	14 kph
27/5/2015 15:19	ON	N22.16900 E113.92752	89 m	0:00:23	14 kph
27/5/2015 15:20	ON	N22.16824 E113.92759	85 m	0:00:22	14 kph
27/5/2015 15:20	ON	N22.16749 E113.92759	84 m	0:00:22	14 kph
27/5/2015 15:20	ON	N22.16674 E113.92759	83 m	0:00:22	14 kph
27/5/2015 15:21	ON	N22.16607 E113.92762	75 m	0:00:20	14 kph
27/5/2015 15:21	ON	N22.16538 E113.92764	77 m	0:00:21	13 kph
27/5/2015 15:21	ON	N22.16472 E113.92767	73 m	0:00:20	13 kph
27/5/2015 15:22	ON	N22.16413 E113.92765	65 m	0:00:18	13 kph
27/5/2015 15:22	ON	N22.16348 E113.92766	73 m	0:00:20	13 kph
27/5/2015 15:22	ON	N22.16272 E113.92767	84 m	0:00:23	13 kph
27/5/2015 15:23	ON	N22.16197 E113.92767	83 m	0:00:23	13 kph
27/5/2015 15:23	ON	N22.16140 E113.92768	64 m	0:00:18	13 kph
27/5/2015 15:23	ON	N22.16071 E113.92768	76 m	0:00:21	13 kph
27/5/2015 15:24	ON	N22.15996 E113.92768	84 m	0:00:23	13 kph
27/5/2015 15:24	ON	N22.15936 E113.92764	67 m	0:00:18	13 kph
27/5/2015 15:25	ON	N22.15856 E113.92762	89 m	0:00:24	13 kph
27/5/2015 15:25	ON	N22.15796 E113.92757	67 m	0:00:18	13 kph
27/5/2015 15:25	ON	N22.15721 E113.92760	84 m	0:00:22	14 kph
27/5/2015 15:26	ON	N22.15653 E113.92756	76 m	0:00:20	14 kph
27/5/2015 15:26	ON	N22.15592 E113.92752	68 m	0:00:18	14 kph
27/5/2015 15:26	ON	N22.15518 E113.92756	82 m	0:00:22	13 kph
27/5/2015 15:27	ON	N22.15448 E113.92756	78 m	0:00:21	13 kph
27/5/2015 15:27	ON	N22.15386 E113.92758	70 m	0:00:19	13 kph
27/5/2015 15:27	ON	N22.15314 E113.92759	80 m	0:00:22	13 kph
27/5/2015 15:28	ON	N22.15240 E113.92749	83 m	0:00:23	13 kph
27/5/2015 15:28	ON	N22.15174 E113.92751	73 m	0:00:20	13 kph

Appendix I. (cont'd)

Date & Time	EFFORT	Position	Leg Length	Leg Time	Leg Speed
27/5/2015 15:28	ON	N22.15120 E113.92755	59 m	0:00:16	13 kph
27/5/2015 15:29	ON	N22.15050 E113.92761	79 m	0:00:21	14 kph
27/5/2015 15:29	ON	N22.14978 E113.92761	80 m	0:00:21	14 kph
27/5/2015 15:29	ON	N22.14915 E113.92758	71 m	0:00:19	13 kph
27/5/2015 15:30	ON	N22.14843 E113.92759	80 m	0:00:21	14 kph
27/5/2015 15:30	ON	N22.14772 E113.92757	79 m	0:00:21	14 kph
27/5/2015 15:30	ON	N22.14707 E113.92754	72 m	0:00:19	14 kph
27/5/2015 15:31	ON	N22.14629 E113.92752	88 m	0:00:23	14 kph
27/5/2015 15:31	ON	N22.14550 E113.92753	87 m	0:00:23	14 kph
27/5/2015 15:31	ON	N22.14478 E113.92753	80 m	0:00:21	14 kph
27/5/2015 15:32	ON	N22.14416 E113.92754	69 m	0:00:18	14 kph
27/5/2015 15:32	ON	N22.14354 E113.92754	69 m	0:00:18	14 kph
27/5/2015 15:32	ON	N22.14289 E113.92774	75 m	0:00:20	14 kph
27/5/2015 15:33	ON	N22.14275 E113.92831	61 m	0:00:16	14 kph
27/5/2015 15:33	ON	N22.14296 E113.92886	62 m	0:00:15	15 kph
27/5/2015 15:33	ON	N22.14352 E113.92965	103 m	0:00:24	15 kph
27/5/2015 15:34	ON	N22.14403 E113.93035	92 m	0:00:21	16 kph
27/5/2015 15:34	ON	N22.14463 E113.93101	96 m	0:00:22	16 kph
27/5/2015 15:34	ON	N22.14476 E113.93113	18 m	0:00:04	17 kph
27/5/2015 15:34	ON	N22.14535 E113.93175	92 m	0:00:21	16 kph
27/5/2015 15:34	ON	N22.14540 E113.93181	9 m	0:00:02	16 kph
27/5/2015 15:34	ON	N22.14551 E113.93194	18 m	0:00:04	16 kph
27/5/2015 15:35	ON	N22.14596 E113.93267	90 m	0:00:21	16 kph
27/5/2015 15:35	ON	N22.14643 E113.93340	92 m	0:00:21	16 kph
27/5/2015 15:35	ON	N22.14656 E113.93356	22 m	0:00:05	16 kph
27/5/2015 15:35	ON	N22.14674 E113.93378	30 m	0:00:07	15 kph
27/5/2015 15:36	ON	N22.14704 E113.93411	47 m	0:00:11	16 kph
27/5/2015 15:36	ON	N22.14749 E113.93460	71 m	0:00:16	16 kph
27/5/2015 15:36	ON	N22.14770 E113.93485	35 m	0:00:08	16 kph
27/5/2015 15:36	ON	N22.14826 E113.93559	98 m	0:00:22	16 kph
27/5/2015 15:37	ON	N22.14869 E113.93627	86 m	0:00:19	16 kph
27/5/2015 15:37	ON	N22.14883 E113.93647	25 m	0:00:06	15 kph
27/5/2015 15:37	ON	N22.14948 E113.93681	81 m	0:00:19	15 kph
27/5/2015 15:37	ON	N22.15018 E113.93692	78 m	0:00:19	15 kph
27/5/2015 15:38	ON	N22.15107 E113.93700	100 m	0:00:24	15 kph
27/5/2015 15:38	ON	N22.15202 E113.93705	105 m	0:00:25	15 kph
27/5/2015 15:38	ON	N22.15272 E113.93704	78 m	0:00:19	15 kph
27/5/2015 15:39	ON	N22.15335 E113.93700	71 m	0:00:17	15 kph
27/5/2015 15:39	ON	N22.15429 E113.93700	105 m	0:00:25	15 kph
27/5/2015 15:40	ON	N22.15507 E113.93690	88 m	0:00:21	15 kph
27/5/2015 15:40	ON	N22.15594 E113.93692	97 m	0:00:23	15 kph
27/5/2015 15:40	ON	N22.15631 E113.93701	42 m	0:00:10	15 kph
27/5/2015 15:40	ON	N22.15705 E113.93700	83 m	0:00:20	15 kph
27/5/2015 15:41	ON	N22.15795 E113.93688	100 m	0:00:24	15 kph
27/5/2015 15:41	ON	N22.15882 E113.93683	97 m	0:00:23	15 kph
27/5/2015 15:42	ON	N22.15962 E113.93688	89 m	0:00:21	15 kph
27/5/2015 15:42	ON	N22.16045 E113.93683	92 m	0:00:22	15 kph
27/5/2015 15:42	ON	N22.16132 E113.93674	98 m	0:00:23	15 kph
27/5/2015 15:43	ON	N22.16203 E113.93674	79 m	0:00:19	15 kph
27/5/2015 15:43	ON	N22.16285 E113.93670	92 m	0:00:22	15 kph
27/5/2015 15:43	ON	N22.16368 E113.93676	92 m	0:00:22	15 kph
27/5/2015 15:44	ON	N22.16450 E113.93681	92 m	0:00:22	15 kph
27/5/2015 15:44	ON	N22.16556 E113.93686	118 m	0:00:28	15 kph
27/5/2015 15:45	ON	N22.16662 E113.93692	118 m	0:00:28	15 kph
27/5/2015 15:45	ON	N22.16749 E113.93692	97 m	0:00:23	15 kph
27/5/2015 15:45	ON	N22.16828 E113.93689	88 m	0:00:21	15 kph
27/5/2015 15:46	ON	N22.16911 E113.93690	93 m	0:00:22	15 kph
27/5/2015 15:46	ON	N22.16998 E113.93691	97 m	0:00:23	15 kph
27/5/2015 15:46	ON	N22.17076 E113.93693	87 m	0:00:21	15 kph
27/5/2015 15:47	ON	N22.17159 E113.93694	93 m	0:00:22	15 kph
27/5/2015 15:47	ON	N22.17254 E113.93689	105 m	0:00:25	15 kph
27/5/2015 15:48	ON	N22.17329 E113.93688	83 m	0:00:20	15 kph
27/5/2015 15:48	ON	N22.17403 E113.93679	83 m	0:00:20	15 kph
27/5/2015 15:48	ON	N22.17467 E113.93678	71 m	0:00:17	15 kph

Appendix I. (cont'd)

Date & Time	EFFORT	Position	Leg Length	Leg Time	Leg Speed
27/5/2015 15:48	ON	N22.17474 E113.93679	9 m	0:00:02	16 kph
27/5/2015 15:49	ON	N22.17565 E113.93679	101 m	0:00:24	15 kph
27/5/2015 15:49	ON	N22.17651 E113.93680	96 m	0:00:23	15 kph
27/5/2015 15:49	ON	N22.17734 E113.93680	92 m	0:00:22	15 kph
27/5/2015 15:50	ON	N22.17821 E113.93683	97 m	0:00:23	15 kph
27/5/2015 15:50	ON	N22.17916 E113.93680	106 m	0:00:25	15 kph
27/5/2015 15:51	ON	N22.18006 E113.93677	101 m	0:00:24	15 kph
27/5/2015 15:51	ON	N22.18101 E113.93677	105 m	0:00:25	15 kph
27/5/2015 15:51	ON	N22.18200 E113.93673	110 m	0:00:26	15 kph
27/5/2015 15:52	ON	N22.18290 E113.93671	101 m	0:00:24	15 kph
27/5/2015 15:52	ON	N22.18390 E113.93678	111 m	0:00:26	15 kph
27/5/2015 15:53	ON	N22.18472 E113.93679	91 m	0:00:22	15 kph
27/5/2015 15:53	ON	N22.18549 E113.93677	87 m	0:00:21	15 kph
27/5/2015 15:53	ON	N22.18626 E113.93679	85 m	0:00:20	15 kph
27/5/2015 15:54	ON	N22.18675 E113.93680	54 m	0:00:13	15 kph
27/5/2015 15:54	ON	N22.18765 E113.93679	101 m	0:00:24	15 kph
27/5/2015 15:54	ON	N22.18852 E113.93677	97 m	0:00:23	15 kph
27/5/2015 15:55	ON	N22.18941 E113.93680	99 m	0:00:24	15 kph
27/5/2015 15:55	ON	N22.19038 E113.93684	107 m	0:00:26	15 kph
27/5/2015 15:56	ON	N22.19121 E113.93688	93 m	0:00:22	15 kph
27/5/2015 15:56	ON	N22.19204 E113.93685	93 m	0:00:22	15 kph
27/5/2015 15:56	ON	N22.19286 E113.93679	91 m	0:00:22	15 kph
27/5/2015 15:57	ON	N22.19368 E113.93675	92 m	0:00:22	15 kph
27/5/2015 15:57	ON	N22.19471 E113.93670	115 m	0:00:28	15 kph
27/5/2015 15:57	ON	N22.19552 E113.93672	90 m	0:00:22	15 kph
27/5/2015 15:58	ON	N22.19628 E113.93678	85 m	0:00:21	15 kph
27/5/2015 15:58	ON	N22.19725 E113.93679	108 m	0:00:26	15 kph
27/5/2015 15:59	ON	N22.19825 E113.93683	112 m	0:00:27	15 kph
27/5/2015 15:59	ON	N22.19918 E113.93686	103 m	0:00:25	15 kph
27/5/2015 16:00	ON	N22.20014 E113.93680	107 m	0:00:26	15 kph
27/5/2015 16:00	ON	N22.20106 E113.93679	102 m	0:00:25	15 kph
27/5/2015 16:00	ON	N22.20191 E113.93683	95 m	0:00:23	15 kph
27/5/2015 16:01	ON	N22.20287 E113.93686	107 m	0:00:26	15 kph
27/5/2015 16:01	ON	N22.20376 E113.93686	99 m	0:00:24	15 kph
27/5/2015 16:02	ON	N22.20489 E113.93691	125 m	0:00:30	15 kph
27/5/2015 16:02	ON	N22.20595 E113.93689	119 m	0:00:29	15 kph
27/5/2015 16:03	ON	N22.20696 E113.93688	112 m	0:00:27	15 kph
27/5/2015 16:03	ON	N22.20792 E113.93687	107 m	0:00:26	15 kph
27/5/2015 16:03	ON	N22.20889 E113.93680	108 m	0:00:26	15 kph
27/5/2015 16:04	ON	N22.20987 E113.93681	110 m	0:00:26	15 kph
27/5/2015 16:04	ON	N22.21084 E113.93682	108 m	0:00:26	15 kph
27/5/2015 16:05	ON	N22.21175 E113.93682	101 m	0:00:24	15 kph
27/5/2015 16:05	ON	N22.21281 E113.93682	118 m	0:00:28	15 kph
27/5/2015 16:06	ON	N22.21372 E113.93678	101 m	0:00:24	15 kph
27/5/2015 16:06	ON	N22.21491 E113.93681	132 m	0:00:32	15 kph
27/5/2015 16:07	ON	N22.21619 E113.93685	144 m	0:00:35	15 kph
27/5/2015 16:07	ON	N22.21709 E113.93685	99 m	0:00:24	15 kph
27/5/2015 16:08	ON	N22.21841 E113.93686	148 m	0:00:36	15 kph
27/5/2015 16:08	ON	N22.21937 E113.93682	107 m	0:00:26	15 kph
27/5/2015 16:09	ON	N22.22051 E113.93679	127 m	0:00:31	15 kph
27/5/2015 16:09	ON	N22.22183 E113.93670	147 m	0:00:36	15 kph
27/5/2015 16:10	ON	N22.22290 E113.93675	119 m	0:00:29	15 kph
27/5/2015 16:10	ON	N22.22340 E113.93720	73 m	0:00:21	12 kph

Appendix II. Survey Effort Database in SWL (May 2015)

(Abbreviations: BEAU = Beaufort Sea State; P = Primary Line Effort; S = Secondary Line Effort)

DATE	AREA	BEAU	EFFORT	SEASON	VESSEL	TYPE	P/S
26-May-15	SW LANTAU	1	4.46	SPRING	STANDARD31516	HKCRP	P
26-May-15	SW LANTAU	2	17.56	SPRING	STANDARD31516	HKCRP	P
26-May-15	SW LANTAU	2	4.58	SPRING	STANDARD31516	HKCRP	S
27-May-15	SW LANTAU	2	44.92	SPRING	STANDARD31516	HYD-HZMB	P
27-May-15	SW LANTAU	3	9.28	SPRING	STANDARD31516	HYD-HZMB	P
27-May-15	SW LANTAU	2	8.82	SPRING	STANDARD31516	HYD-HZMB	S
27-May-15	SW LANTAU	3	7.68	SPRING	STANDARD31516	HYD-HZMB	S

Appendix III. Chinese White Dolphin Sighting Database in SWL (May 2015)

(Abberviations: STG# = Sighting Number; HRD SZ = Dolphin Herd Size; BEAU = Beaufort Sea State; PSD = Perpendicular Distance; ND = Not Determined; BOAT ASSOC. = Fishing Boat Association; P/S: Sighting Made on Primary/Secondary Lines)

DATE	STG #	TIME	HRD SZ	AREA	BEAU	PSD	EFFORT	TYPE	NORTHING	EASTING	SEASON	BOAT ASSOC.	P/S
15-May-15	3	1133	3	SW LANTAU	1	ND	OFF	HKCRP	803668	808670	SPRING	NONE	
15-May-15	4	1210	1	SW LANTAU	3	ND	OFF	HKCRP	804859	805413	SPRING	NONE	
15-May-15	5	1224	8	SW LANTAU	2	ND	OFF	HKCRP	805372	803702	SPRING	NONE	
27-May-15	1	1104	5	SW LANTAU	2	127	ON	HYD-HZMB	806006	802600	SPRING	NONE	P
27-May-15	2	1220	1	SW LANTAU	2	37	ON	HYD-HZMB	807008	805459	SPRING	NONE	P
27-May-15	3	1629	2	SE LANTAU	2	ND	OFF	HYD-HZMB	808131	815999	SPRING	NONE	

Appendix IV. Individual dolphins identified during HYD-HZMB monitoring surveys in May 2015

ID#	DATE	STG#	TYPE	AREA
SL27	15/05/15	3	HKCRP	SW LANTAU
WL62	27/05/15	3	HYD-HZMB	SE LANTAU
WL91	27/05/15	3	HYD-HZMB	SE LANTAU
WL94	15/05/15	5	HKCRP	SW LANTAU
WL128	15/05/15	5	HKCRP	SW LANTAU
WL165	27/05/15	2	HYD-HZMB	SW LANTAU
WL170	15/05/15	3	HKCRP	SW LANTAU
WL238	27/05/15	1	HYD-HZMB	SW LANTAU

Appendix V. Photographs of Identified Individual Dolphins in May 2015 in SWL waters