

SARAWAK DOLPHIN PROJECT

Final Report

IWC Small Cetacean Fund

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With support from Anna Norliza Zulkifli Poh, Gianna Minton and Andrew Alek Tuen

1.0 General introduction

In January 2012, funding was obtained from the International Whaling Commission's Small Cetacean Conservation Fund to continue coastal dolphin research in Sarawak's nearshore waters. The Sarawak Dolphin Project, which was launched in May 2008, continues to focus on conservation of the four cetacean species most commonly observed in the coastal waters of Sarawak, which are (in order of frequency): Irrawaddy dolphins (*Orcaella brevirostris*), finless porpoises (*Neophocaena phocaenoides*), Indo-Pacific humpback dolphins (*Sousa chinensis*), and bottlenose dolphins (*Tursiops aduncus*).

The specific objectives listed in the initial project proposal are as follows:

- Refining and/or detecting trends in relative and absolute abundance for Irrawaddy dolphins, finless porpoise and humpback dolphins in our survey areas;
- Refining our understanding of distribution and habitat preferences for each of the species above in relation to seasonal and tidal cycles and water parameters such as salinity, turbidity, and temperature, as well as depth, distance from shore and distance from river mouths;
- Monitoring cetacean distribution and, if possible, population trends, in relation to habitat parameters, including potential habitat degradation from major coastal developments in our survey areas;
- Ground-truthing the results of fisheries interviews being conducted in 2011 by obtaining more detailed information on fisheries operations in our study areas, including length and precise tracks of fishing trips, gear used at different times of year and in specific fishing areas, species targeted, species caught, species discarded, and interactions with cetaceans;
- Analysis of potential overlap between fishing effort and dolphin distribution, and between commercially targeted fish/crustacean species and cetacean prey;
- Training and capacity building for three local scientists involved in the project, as they gradually assume more planning, management and data analysis responsibility for the project.
- Raising awareness of cetacean conservation issues in coastal fishing communities throughout Sarawak, and working to establish and strengthen an effective grassroots stranding network and empower communities affected by coastal construction and habitat degradation.
- Collection of samples from by-caught or beach-cast cetacean specimens for use in genetic, morphometric, and stomach content analyses;
- Creating a coastal cetacean conservation management plan for Sarawak.

The IWC funding allowed the team to build on progress made over the years, by continuing boat-based surveys in Kuching and Similajau areas in the 2012-2013 field seasons. These surveys were considered essential to monitor population distribution and numbers, as well as assess any potential changes in cetacean distribution or water parameters in the face of major coastal developments in both these study areas. The project was further enhanced by engaging a number of key coastal fishing communities as active partners in research and conservation efforts. The detailed activities carried out to achieve the objectives stated in our initial project proposal, are explained in detail in the following section.

2.0 Project activities in relation to objectives:

Objective number 1: Refining and/or detecting trends in relative and absolute abundance for Irrawaddy dolphins, finless porpoise and humpback dolphins in our survey areas; AND

Objective number 3: Monitoring cetacean distribution and, if possible, population trends, in relation to habitat parameters, including potential habitat degradation from major coastal developments in our survey areas;

Boat surveys funded by the IWC and addressing objectives highlighted in the IWC proposal started in August 2012 through October 2012, after which surveys were suspended for the monsoon season. They were continued again in March through September 2013. Surveys were carried out for four consecutive days every month in Kuching and 4 consecutive days in September 2012, April and September 2013 in Similajau, (with some interruptions for poor weather).

Our two survey areas were chosen for reasons of logistical practicality, as well as their contrasting habitat composition. The Similajau coastline runs from approximately north to south and is interspersed with rivers and streams of varying sizes at fairly regular intervals (see figure 1). The Kuching coastline runs from east to west and comprises a complex and interconnected series of wide rivers and mangrove channels, which empty into three major estuaries/bays. The Kuching study area includes some of the waterways encompassed in the Kuching Wetland National Park (KWNP), while the Similajau study area includes the entire coastline bordering the Similajau National Park. A further reason for choosing the Kuching and Similajau areas was the large-scale coastal developments planned in both places. In Kuching, the construction of a flood mitigation channel will transport large volumes of silt laden freshwater into the Salak River estuary. Planned coastal developments in the Similajau study area include extensive dredging for ports and wharves and the construction of a large industrial park and aluminum smelter near Tanjung Similajau.

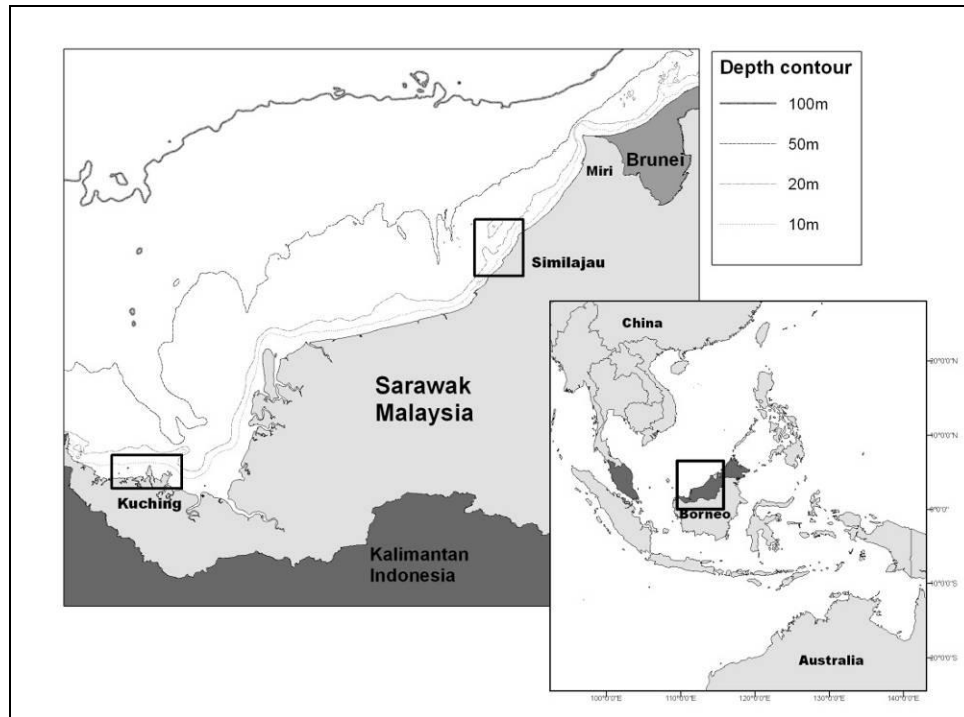


Figure 1: The two study areas in Sarawak, Malaysia.

Line-transect methodology was used to generate relative and absolute abundance estimates. Transects extended up to 15km offshore and ran at 45 degrees parallel to the coast allowing for detection of cetacean density gradients alongshore as well as onshore/offshore (Dawson *et al.*, 2008). The data collected during surveys was analyzed to calculate encounter rates for sightings made during optimal search effort (e.g. Cañadas *et al.*, 2002). For each survey area 4 randomized sets of tracks were generated, and one of the four was randomly selected before each sampling period. Relative abundance of cetaceans was compared directly with relative abundance of active fishing effort observed during line transect surveys, as well as with habitat parameters such as depth, distance from shore, distance from river mouths, salinity, turbidity, and temperature, measured in situ during cetacean sightings and at set intervals during transects (e.g. Parra *et al.*, 2006). Robust absolute abundance estimates through line transect methods and use of DISTANCE was obtained only for the two most frequently encountered species – Irrawaddy dolphins and finless porpoises.

Another method to detect trends in absolute abundance and distribution patterns for Irrawaddy dolphins and humpback dolphins is via photo identification. Photo identification of Irrawaddy dolphins (e.g. Parra and Corkeron, 2001) was used to generate mark-recapture population estimates with wide confidence intervals for Irrawaddy dolphins (Minton *et al.*, 2013) and a manuscript on the population estimates for humpback dolphins is also ready for submission (Zulkifli Poh *et al.*, in prep). The project has catalogues for Irrawaddy and humpback dolphins photographed from 2008 onward, offering insights into ranging patterns of both species (data which was used for Anna Norliza's MSc thesis).

Objective number 2: Refining our understanding of distribution and habitat preferences for each of the species above in relation to seasonal and tidal cycles and water parameters such as salinity, turbidity, and temperature, as well as depth, distance from shore and distance from river mouths;

Water parameter sampling: A Hydrolab Quanta was used to measure salinity, turbidity, and temperature at the start and end of each survey transect as well as at each cetacean sighting location. Measurements were taken at 1m depth, and at 3m depth intervals thereafter, extending as far as 10m or to the sea floor.

Objective number 4: Ground-truthing the results of fisheries interviews being conducted in 2011 by obtaining more detailed information on fisheries operations in our study areas, including length and precise tracks of fishing trips, gear used at different times of year and in specific fishing areas, species targeted, species caught, species discarded, and interactions with cetaceans; AND

Objective number 5: Analysis of potential overlap between fishing effort and dolphin distribution, and between commercially targeted fish/crustacean species and cetacean prey;

Although GPS units were loaned to chosen fishermen, the unannounced and unexpected departure of one of our RA's who subsequently took up a new job with an NGO resulted in the loss of much of the valuable data that could have been collected from the fishermen. The GPS units were successfully retrieved from the fishermen. However, sadly these did not contain usable data for analyses of fisherfolks' operations. However, during each of our cetacean-focused boat surveys, we also collected information on all fisheries activities observed while on effort. The interactions and geographical overlap between fishing activities and dolphin distribution are reported here to try and compensate for the lost data.

Objective number 6: Training and capacity building for local scientists involved in the project.

Cindy Peter graduated with her Masters degree in October 2012 and was employed as a graduate Research Assistant under the IWC grant from August through December 2012. Following the departure of Gianna Minton in July 2012, Cindy has taken over the day-to-day responsibilities of running the project. In January 2013, Cindy was hired as a Research Fellow in Universiti Malaysia Sarawak under the Shell Chair Endowment.

Anna Norliza and Jenny Ngeian were also Masters candidates with the university working on the Sarawak Dolphin Project. Anna was hired as a Research Assistant under the project in January 2012, while Jenny was working under a postgraduate scholarship with the Sarawak Foundation from September 2011 to February 2013. Both completed the data collection for their masters' theses as of October 2012. Anna graduated with her Masters in October 2013 from Universiti Malaysia Sarawak, but Jenny unexpectedly left the project to take up employment with an NGO before completing her masters' thesis. Sadly repeated attempts to contact her and re-engage her for the project have been unsuccessful.

Objective number 7: Raising awareness of cetacean conservation issues in coastal fishing communities throughout Sarawak, and working to establish and strengthen an effective grassroots stranding network and empower communities affected by coastal construction and habitat degradation. AND

Objective number 8: Collection of samples from by-caught or beach-cast cetacean specimens for use in genetic, morphometric, and stomach content analyses;

By strengthening relationships and through constant interactions with key informants in the targeted coastal villages, we have encouraged them to report any accidental bycatch or strandings in their villages.

Cindy Peter conducted presentations to students of the Universiti Malaysia Sarawak Oceanography programme in 2013 and 2014, as well as to a wider audience of roughly 60 people at the Sarawak Biodiversity Centre (SBC) in October 2014 (see Appendix 1 for photos). SBC has indicated their willingness to assist financially in future workshops along the coast of Sarawak. These will be conducted in 2015.

Objective number 9: Creating a coastal cetacean conservation management plan for Sarawak.

The results of work conducted by SDP were incorporated into the Kuching Wetlands Management Plan, which covers an area of 6,610 hectares including the estuarine habitat defined as core habitat for Irrawaddy dolphins and also used by finless porpoise and humpback dolphins. This plan has been accepted at the State level, and is being implemented by Sarawak Forestry Department and Sarawak Forestry Corporation. It is an adaptive management plan, and as such takes into account all new data and recommendations collected or made by the SDP. At the end of each survey year the SDP shares their sightings database, reports and analyses with the Sarawak Forestry Corporation and the Sarawak Forestry Department, the two key government agencies responsible for implementation and monitoring of the Kuching Wetlands Management Plan.

In September 2014, we shared our data from 2008-2013 with World Wildlife Fund (WWF) Kuching who was in charge of compiling data on distribution area of wildlife (cetaceans, primates, fish (*Tor* sp.) among others), area with anthropogenic activities, national parks as well as the pristine forest throughout Sarawak. The data was compiled to determine which areas in Sarawak have the potential to be Priority Conservation Areas. This is an initiative carried out with the cooperation of Sarawak Planning Unit, Sarawak Forestry Corporation and other stakeholders to determine which areas are to be conserved at minimum cost.

The next phase will be to draft a more specific cetacean conservation management plan for the wider "Kuching Bay" or perhaps even for all of Sarawak. This will be a longer-term project, as it will require full collaboration and buy-in from a wide range of stakeholders including government agencies, tourism operators, fishing communities, and industry. The foundations laid by this latest IWC funded phase of the project have prepared the ground for this next stage of cetacean conservation in Sarawak. This wider management plan will address issues such as:

- Ensuring that cetaceans and other marine fauna are accounted for in environmental assessments for any coastal developmental plans;
- Regulations (both government and community-driven) to minimize cetacean bycatch in coastal fisheries; and

- Introduction of dolphin watching regulations in Kuching Bay, still the only site for dolphin watch tourism in Sarawak today.

3.0 Results and analyses to date

3.1 Boat survey results

Table 3.1 below depicts the timing and results of the surveys conducted between August 2012 and September 2013 (the period funded by the IWC small cetacean grants). During this period, the project dedicated a total of 3,290 km and 213 hours to boat surveys, of which 1591 km and 104 hours were spent on effort. This period of fieldwork yielded a total of 102 cetacean sightings, of which 66 were made on effort and can be used for calculation of relative abundance and can be included in longer-term line transect analyses for absolute abundance estimates as well. In both the Kuching and Similajau regions, Irrawaddy dolphins were the most frequently sighted species, followed by finless porpoise and humpback dolphins.

Figures 3.1 and 3.2 below depict the on-effort survey tracks and sightings made in the Kuching and Similajau survey areas respectively between August 2012 and September 2013. Anna used the water parameters data as well as depth, distance from shore and distance from river mouths to compare the interspecific differences in spatial distribution as part of her Master's thesis. We include the results of the analysis in this report (Figure 3.3a and 3.3b). By pooling the data from 2010 through to the end of 2012, the Wilcoxon rank sum test revealed that Irrawaddy dolphins occurred closer to river mouths and shore when compared to humpback dolphins (river mouth: $W = 477$, $p\text{-value} = 0.0002155$ and shore: $W = 435$, $p\text{-value} = 0.005939$) and finless porpoises (river mouth: $W = 2318.5$, $p\text{-value} = 5.036e-11$ and shore: $W = 2236$, $p\text{-value} = 3.919e-09$). Irrawaddy dolphins also occurred in areas with lower salinity than that of humpback dolphins ($W = 75.5$, $p\text{-value} = 0.003169$) and finless porpoises ($W = 1843.5$, $p\text{-value} = 0.0002832$). Humpback dolphins were found in areas with lower turbidity than Irrawaddy dolphins ($W = 41$, $p\text{-value} = 0.0003449$) and finless porpoises ($W = 222$, $p\text{-value} = 0.00929$). Depth is the best parameter differentiating finless porpoise from Irrawaddy dolphin distribution from that of humpback dolphins, whereby finless porpoises preferred shallower waters compared to the other two species ($W = 530$, $p\text{-value} = 2.898e-06$ and $W = 59.5$, $p\text{-value} = 0.008958$ respectively). However, it should be noted that this applies only to the Kuching data, as previously analysed sighting distribution data that included sightings from Similajau indicated that finless porpoises were more likely to occur in slightly deeper waters further offshore than Irrawaddy dolphins. Finless porpoises also occurred in areas with higher pH than Irrawaddy dolphins ($W = 1785.5$, $p\text{-value} = 0.002959$).

Table 3.1 Overview of surveys conducted in the period of IWC fieldwork funding – August 2012 through to September 2013.

Date Surveyed	KM on effort	Hours on effort	Irrawaddy on effort	enctr per hour	enctr per km	Finless on effort	enctr per hour	enctr per km	Humpback dolphins	Unconfirmed species
Kuching										
2012_08_14	35.24	2:26:00	0			1			1	0
2012_08_15	46.87	3:03:00	2			0			0	0
2012_08_16	73.77	4:48:00	0			0			0	0
2012_08_17	40.23	2:42:00	0			0			1	0
subtotal	196.11	12:59:00	2	0.154	0.010	1	0.077	0.005	2	0
2012_09_11	60.19	3:58:00	0			1			0	0
2012_09_12	55.54	3:28:00	2			1			0	0
2012_09_13	60.75	3:44:00	1			0			0	1
subtotal	176.48	11:10:00	3	0.269	0.017	2	0.179	0.011	0	1
2012_10_09	53.37	3:21:00	0			1			0	1
2012_10_10	42.84	2:41:00	1			3			0	0
2012_10_11	51.62	3:23:00	0			0			0	0
subtotal	147.83	9:25:00	1	0.106	0.007	4	0.425	0.027	0	1
2013_03_18	59.71	3:11:00	4			1			0	0
2013_03_19	19.21	1:24:00	0			0			0	0
2013_03_20	39.82	2:44:00	0			2			1	0
2013_03_21	70.19	4:36:00	0			0			0	0
subtotal	188.92	11:55:00	4	0.336	0.021	3	0.252	0.016	1	0
2013_04_23	50.43	3:21:00	0			0			0	0
2013_04_24	60.49	4:11:00	0			2			1	0
2013_04_25	73.49	4:51:00	0			2			0	0
2013_04_26	28.59	1:58:00	1			0			0	0
subtotal	213.00	14:21:00	1	0.070	0.005	4	0.279	0.019	1	0
2013_05_14	35.26	2:12:00	3			0			0	0
2013_05_15	54.87	3:41:00	3			2			0	0
2013_05_16	77.78	4:59:00	0			0			0	0
2013_05_17	52.15	3:27:00	0			0			0	0
subtotal	220.07	14:19:00	6	0.419	0.027	2	0.140	0.009	0	0
2013_08_28	28.78	2:00:00	2			0			0	0
2013_08_29	61.52	4:04:00	0			1			4	0
subtotal	90.30	6:04:00	2	0.330	0.022	1	0.165	0.011	4	2
<u>Kuching total</u>	<u>1232.71</u>	<u>147:06:00</u>	<u>19.00</u>	<u>0.237</u>	<u>0.015</u>	<u>17.00</u>	<u>0.212</u>	<u>0.014</u>	<u>7.00</u>	<u>2</u>

Similajau										
2012_09_04	25.56	1:49	1			3			0	0
2012_09_05	42.47	2:52	1			0			0	0
2012_09_06	41.67	2:45	0			1			0	0
Subtotal	109.69	7:26:00	2	0.269	0.018	4	0.538	0.036	0	0
2013_04_02	34.90	2:19:00	3			0			0	0
2013_04_03	43.02	2:57:00	0			1			0	0
2013_04_04	23.34	1:37:00	2			1			0	0
2013_04_05	33.00	2:19:00	2			2			1	0
subtotal	134.26	9:12:00	7	0.761	0.052	4	0.435	0.030	1	0
2013_09_10	34.45	6:19	0			1			0	0
2013_09_11	42.41	6:14	0			2			0	0
2013_09_12	37.60	6:24	2			1			0	0
subtotal	114.45	18:57:00	2	0.266	0.017	4	0.532	0.035	0	0
<u>Similajau total</u>	<u>358.40</u>	<u>66:44:00</u>	<u>11.00</u>	<u>0.661</u>	<u>0.031</u>	<u>12.00</u>	<u>0.721</u>	<u>0.033</u>	<u>1.00</u>	<u>0</u>
<u>Combined total</u>	<u>1591.11</u>	<u>213:50:00</u>	<u>30.00</u>	<u>0.287</u>	<u>0.019</u>	<u>29.00</u>	<u>0.278</u>	<u>0.018</u>	<u>11.00</u>	<u>2</u>

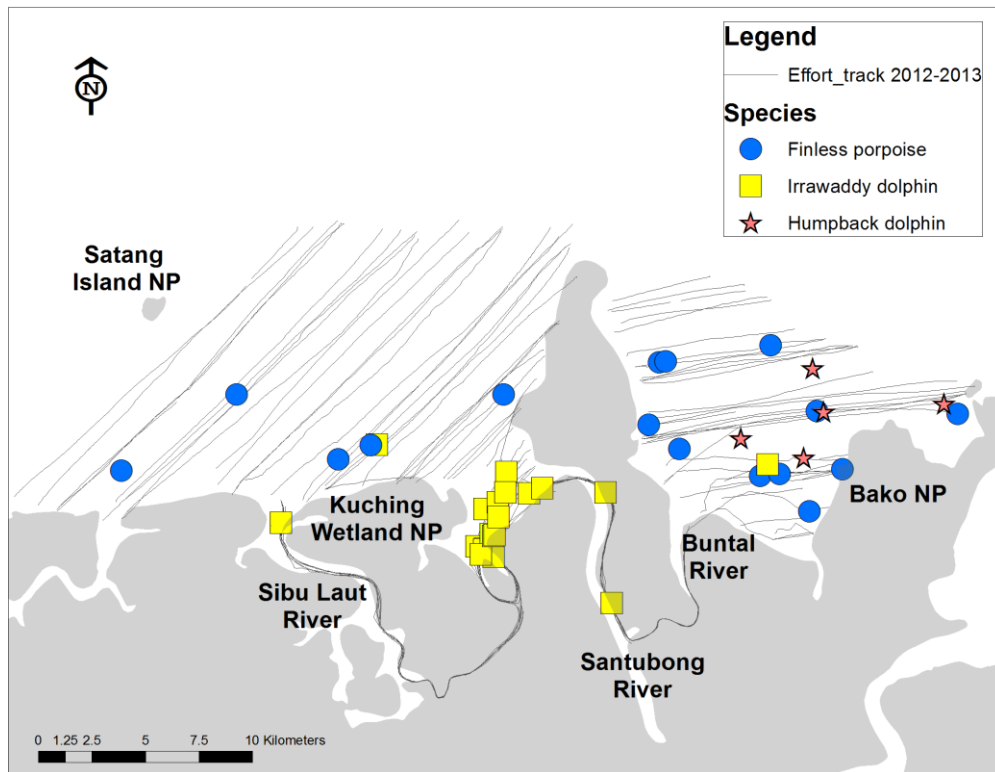


Figure 3.1: August 2012-August 2013 on-effort portions of survey tracks and cetacean sightings in the Kuching region.

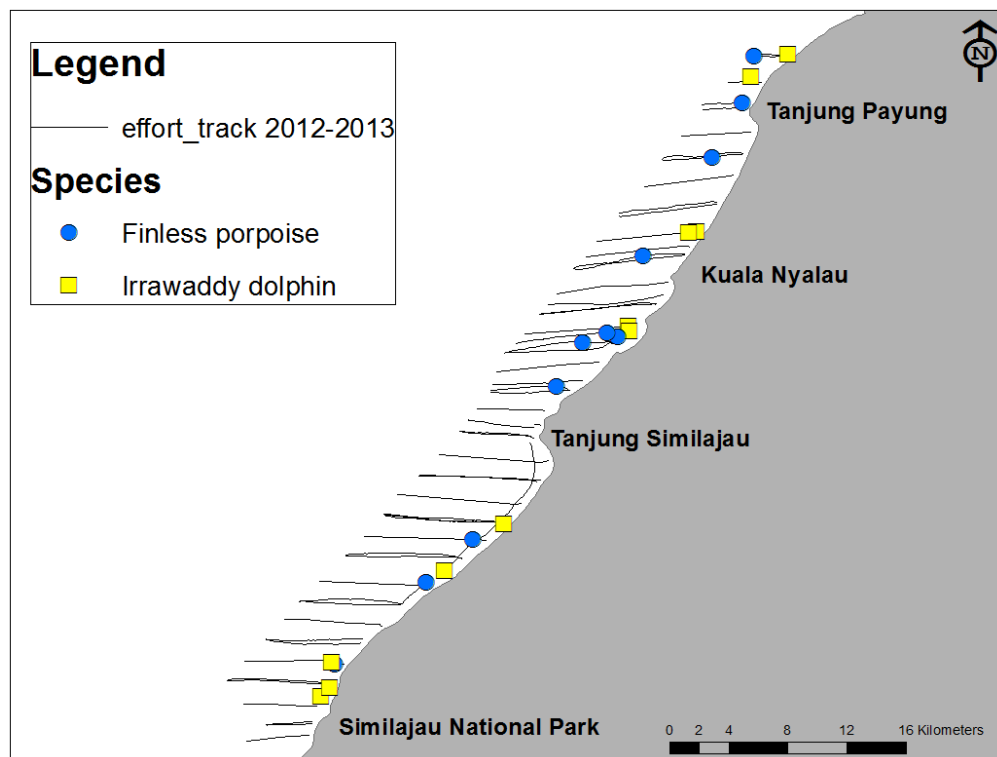


Figure 3.2: September 2012, April and September 2013 on-effort portions of survey tracks and cetacean sightings in the Bintulu region.

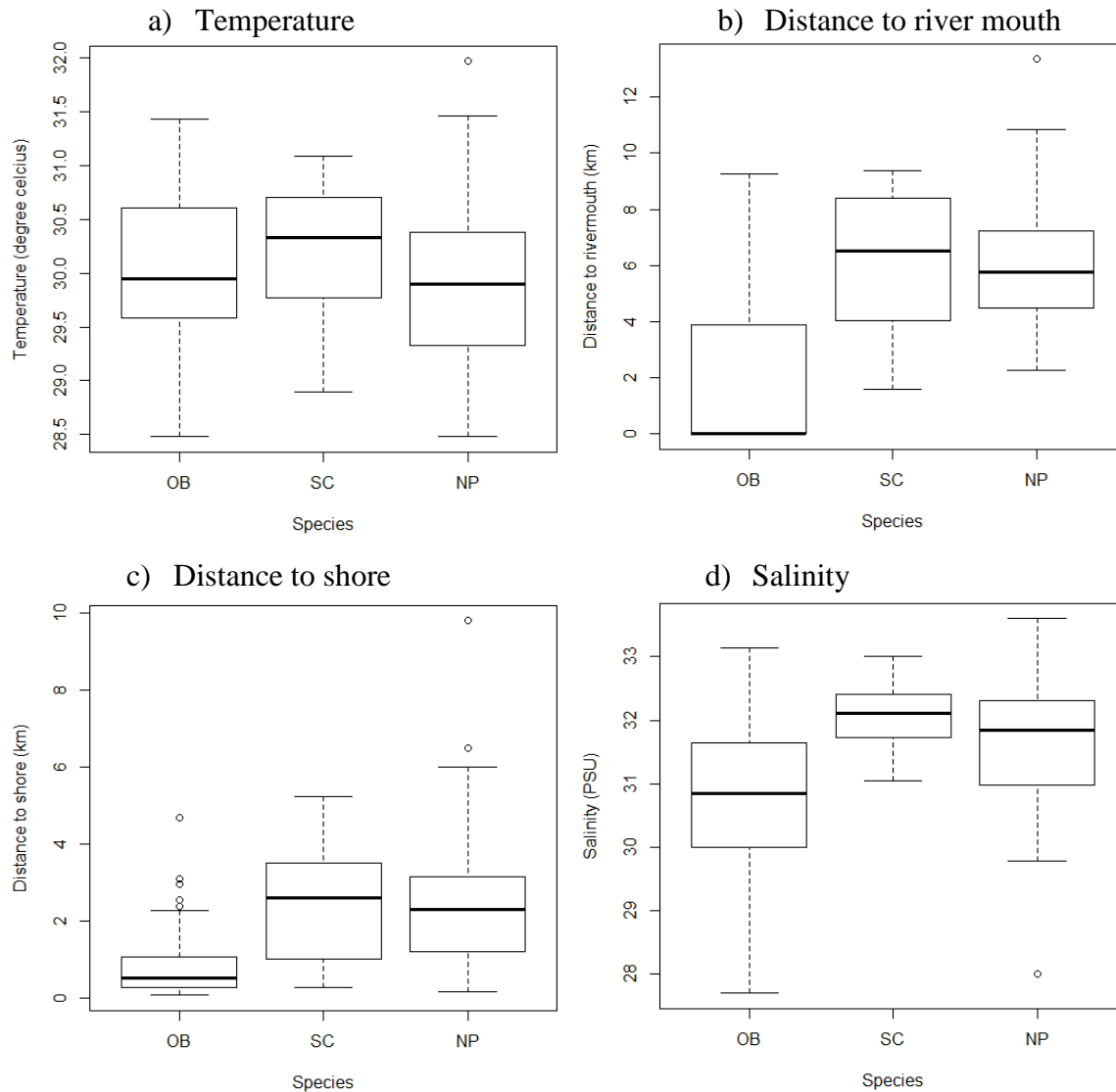


Figure 3.3a: Box and whisker plots showing the minimum and maximum values, median and upper and lower quartiles of the values for a) temperature, b) distance to river mouth, c) distance to shore and d) salinity for on effort sightings of Irrawaddy dolphins (OB), humpback dolphins (SC) and finless porpoises (NP).

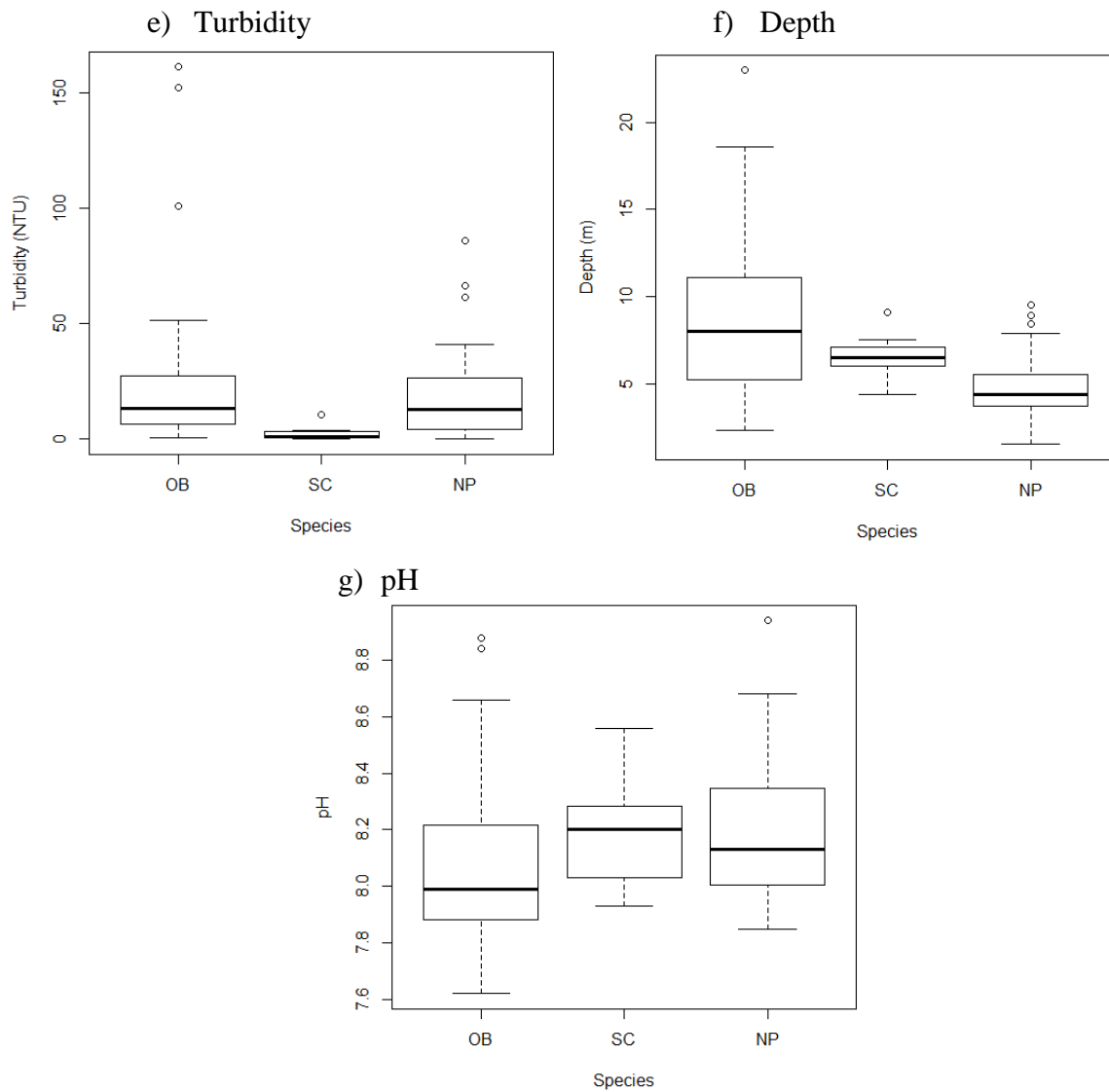


Figure 3.3b: Box and whisker plots showing the minimum and maximum values, median and upper and lower quartiles of the values e) turbidity, f) depth and g) pH for on effort sightings of Irrawaddy dolphins (OB), humpback dolphins (SC) and finless porpoises (NP).

3.2 Photo-identification results

Photographs of Irrawaddy and humpback dolphin dorsal fins were taken from the boat during every encounter. Although Irrawaddy dolphins were encountered more frequently, their elusiveness and unpredictable surfacing patterns made it difficult to obtain good quality photographs. Humpback dolphins, on the other hand, were easier to photograph, especially when a group of more than five individuals was observed.

Irrawaddy and humpback dolphin photographs taken through the end of 2013 have been entered matched and analyzed and the numbers are summarized in the table below.

Table 3.2: Photo identification results of Irrawaddy dolphin and humpback dolphin after processing in a tailor-made MS Access database. Please note that the numbers reflect the total numbers of photographs taken and processed for inclusion in the database since the start of the Sarawak Dolphin Project in 2008.

Species	Left dorsal fin			Right dorsal fin		
	Total	Photo quality of 3 or higher	Individuals re-sighted across surveys	Total	Photo quality of 3 or higher	Individuals recognized across sightings
Irrawaddy dolphin	381	247	45	380	219	31
Indo-Pacific humpback dolphin	198	71	14	183	71	8

A mark-recapture analysis was performed on Irrawaddy and humpback dolphins in Kuching Bay. The results from the mark-recapture analysis as well as line-transect for Irrawaddy dolphins has been published while the manuscript on the population estimates for humpback dolphins has been submitted Aquatic Mammals for review.

The mark-recapture estimate for Irrawaddy dolphins based on a weighted mean of estimates derived from photographs of left sides and right sides of dorsal fins was 233 (CV = 22.5%, 95% CI 151-360), whereas line-transect estimate for Irrawaddy dolphins was 149 individuals (CV=28%, 95% confidence interval 87-255). Although these two methods revealed slightly different estimates of abundance, the confidence intervals and coefficient of variances (CV) showed a high degree of overlap (Minton *et al.*, 2013).

Forty-five individual of Irrawaddy dolphins in Kuching and Similajau were re-sighted between surveys based on recognition of the profiles of their left dorsal fin while 31 were recognized and re-sighted on the basis of photos of the right side of their dorsal fins (Table 3.2). These re-sights were made both between months in the same survey year and between years.

3.3 Fisheries activities and interactions with dolphin sightings

During boat surveys in Kuching and in Similajau, all fishing activities or fishing gear observed while on effort were recorded using a standardized format. Table 3.3 depicts the number of boats and fishing gears that were observed as well as the encounter rates for each category of fishing gear. Gillnets were the most frequently encountered fishing gear in both Kuching and Similajau with encounter rates of 1.12 hour⁻¹search effort and 0.78 hour⁻¹ respectively. Fishing gears like jellyfish hooks, trammel nets, bag nets, stake nets and push nets were only seen during Kuching

surveys, whereas trawler boats from class A (with a fishing coverage of less than five nautical miles from shore) and B (fishing coverage between five to twelve nautical miles from shore) were more commonly seen in Similajau.

These observations were separated into three seasons i.e. pre-monsoon which is typically from July to September, monsoon which is from October to February and post-monsoon from March to June (Figure 3.4) and the relative abundance for each period was calculated. Unattended gillnets were most frequently encountered in the pre-monsoon and monsoon seasons while fibreglass boats attending gillnets were the highest for post-monsoon season. Unattended gillnets were usually set prior to the start of the high tide to enable more catch.

Table 3.3: Number of boats and fishing gears and encounter rates.

Fishing vessel/gear	Kch (Aug '12- May '13)	Encounter rate hour ⁻¹	Encounter rate km ⁻¹	Sim (Sep '12 & Apr '13)	Encounter rate hour ⁻¹	Encounter rate km ⁻¹
Effort hours	141.03			16.63		
Effort km	1142.41			243.95		
Fiberglass boat (fb)	31	0.22	0.03			
Gillnet (gn)	158	1.12	0.14	13	0.78	0.05
Jellyfish hook	62	0.44	0.05			
Stake net (sn)	14	0.10	0.01			
Bag net (bn)	29	0.21	0.03			
Trammel net (tn)	7	0.05	0.01			
Trawler boat	2	0.01	1.75×10^{-3}	4	0.24	0.02
Push net	1	0.03	8.75×10^{-4}			
Fb + gn + tn +handline + sn	170	1.21	0.15	5	0.30	0.02

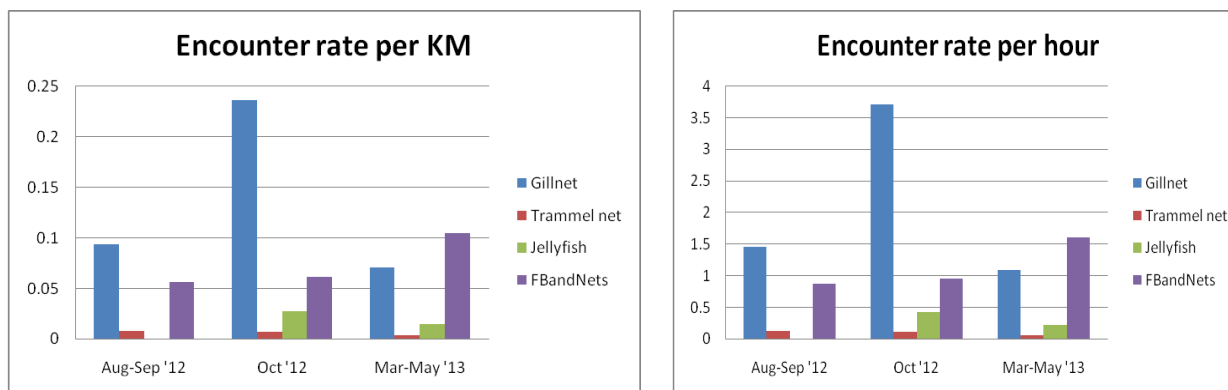


Figure 3.4: Encounter rates for selected fishing gears separated by season: pre monsoon (August-September), monsoon (October) and post-monsoon (March- May) in 2012.

Since it was clear that gillnets were the gear with the highest encounter rates both in Kuching and Similajau, we plotted the geographical overlap of cetacean observations with a depiction of gillnet fishing effort as a function of encounter rate per 2km by 2km grid cell (Figure 3.5). Gillnets were mostly seen in Santubong River estuary, Buntal River, Sibulaut river and along the coast of Santubong and Bako-Buntal Bay. During all but two sightings of Irrawaddy dolphins in the coast of Santubong and Bako-Buntal Bay, there were gillnets present within a 2km radius of the dolphin group.

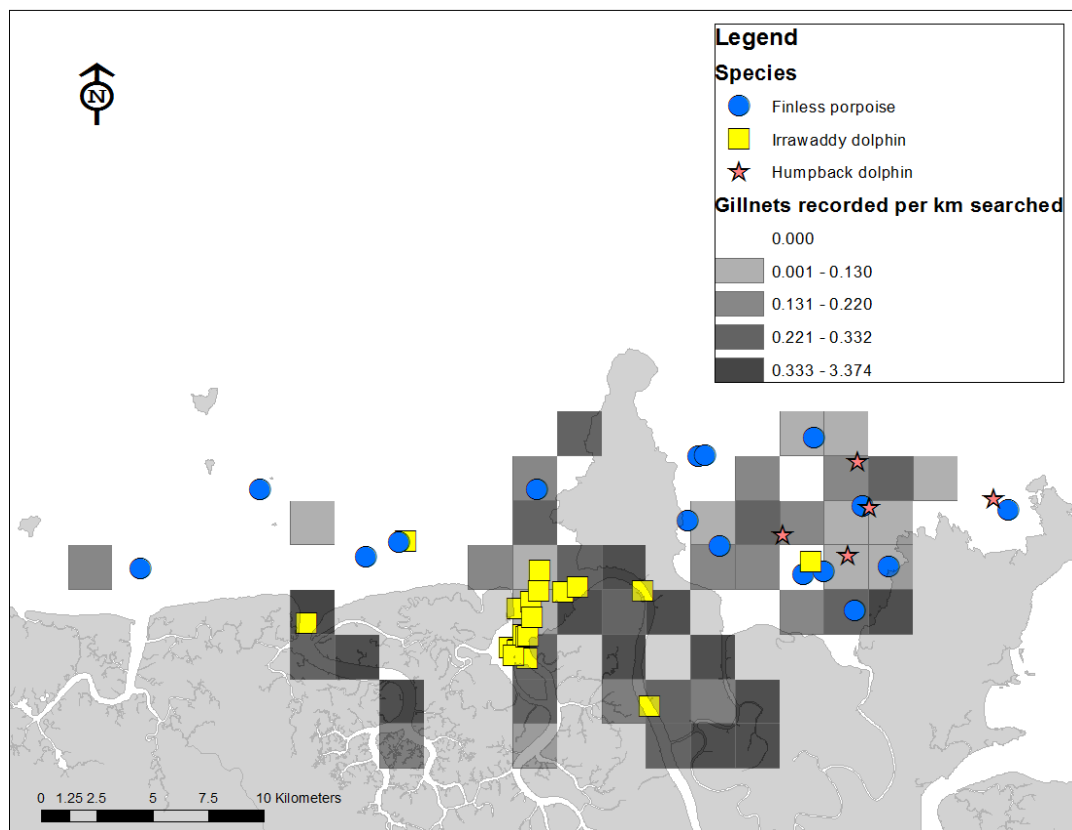


Figure 3.5: Gillnet relative density represented by the number of sightings per kilometer searched in 2km by 2km grid cells.

3.4 Collection of samples from by-caught or beach-cast cetacean specimens for use in genetic, morphometric, and stomach content analyses

In 2012, we had two reports of cetaceans found dead due to entanglement in an unattended trammel net. Both reports were made by fishermen who had been interviewed by one of our RAs and knew of the importance of reporting such cases. Prior to the interview, they mentioned that they would have either discard the carcass into the sea or brought it back to the village and the meat would be shared among their family and friends. Table below is a summary of the stranding cases that we have responded to and came to our attention.

Table 3.4: Dates and locations of dead cetaceans that were reported and examined

Date	Location	Species	Description	Samples collected
August 2012	Kuching Wetland National Park, Kuching	Irrawaddy dolphin	An adult female incidentally caught in a trammel net.	Skin, tissue, teeth, stomach contents and nodules
September 2012	Bako National Park, Kuching	Finless porpoise	A male calf, measuring 80cm with its teeth not erupted yet.	Skin and tissue
December 2013	Kuching Wetland National Park, Kuching	Short-finned pilot whale	Reported in a local newspaper.	Tissue from cranium. Skull currently on display in Sarawak Museum.
January 2014	Tatau, about 60km from Similajau National Park	Suspected Bryde's whale	Reported in a local newspaper. Locals managed to refloat the animal during high tide.	None.

3.5 Networking with international and regional scientists

During the funding period Sarawak Dolphin Project staff was able to attend several regional and international events, during which they were able to highlight the conservation challenges and achievements in Sarawak, gather valuable knowledge and skills, and build up a network of colleagues with whom they will be able to collaborate on cetacean conservation challenges for many years to come. While many of these events took place after the IWC funding period, we include a brief description of them here to illustrate how the IWC funding has allowed the project to continue and to have regional and international as well as local significance. Events and symposia included:

i) The Third Southeast Asian Marine Mammals Symposium III in Langkawi Island, Malaysia

Cindy was invited and sponsored to be a country delegate for Malaysia to the Third Southeast Asian Marine Mammals Symposium III (SEAMAM III) organized by the MareCet Research Organization at Langkawi Island, Malaysia. Anna Norliza and Jenny Ngeian also attended the symposium as observers and their trips were sponsored by a third party funder. At the symposium, Cindy presented the updated country report to an audience of about 50 people including marine mammal researchers and unaffiliated observers working in the region as well as government representatives. Over the course of seven days, the SDP team attended workshops on acoustics and strandings and discussions on type of threats to marine mammals headed by established researchers on the topics. SEAMAM III provided the opportunity for Cindy, Anna and Jenny to talk to established researchers in the region and build up links for further collaboration research.

ii) National Marine Mammal Stranding Network Taskforce

Since its formation in 2010, Cindy has been invited to join the country's marine mammal stranding network taskforce, which is led by the Fisheries Department. This taskforce was set up with the objectives of coordinating and increasing effectiveness of stranding response on a national level. It also hoped to increase awareness for general public regarding conservation of marine mammals throughout Malaysia. As a member of the university and an active researcher

in Sarawak, Cindy was tasked as one of the person to respond to any stranding case in Kuching zone. A meeting for the zone of Kuching was called for in October 2013 and during the meeting it was agreed that Sarawak Forestry Corporation would be the leader for the whole of Sarawak as they are the main wildlife management agency in the state. Since then, there hasn't been any update from the national taskforce nor state taskforce leader.

Although SDP have been cooperative and tried to ensure that our project has relevance on a management level and has tried to integrate our research and science with government initiatives, the bureaucracy and red tapes in conservation and management of wildlife in the state and country has proven to be the main stumble block. Hence, we feel striving toward a government accepted management plan is a much bigger goal than originally thought, and will require years of hard work and collaboration.

iii) The 20th Biennial Conference on the Biology of Marine Mammals in Dunedin, New Zealand
Following SEAMAM III, Cindy obtained a travel grant from Ocean Park Conservation Foundation Hong Kong to attend the 20th Biennial Conference on the Biology of Marine Mammals held at Dunedin, New Zealand from 9 – 13 December 2013. Although she did not present any papers or posters at the conference, the opportunity to meet and discuss with several renowned international scientists gave her some insights and advices on furthering her PhD plans, working on the genetics of Irrawaddy dolphins and humpback dolphins, something she has always been interested to pursue. While in Dunedin, the SEAMAM III group with addition to international researchers and additional members from the region met and agreed to update each other on the progress of work that has been conducted by each country.

iv) Research visit to the Gulf of Thailand

Prof Ellen Hines of San Francisco State University and the Department of Marine and Coastal Resources, Thailand invited Cindy to assist in the fieldwork conducted yearly in the Gulf of Thailand from 15 – 25 January 2014. The goals of the invitation were to build collaborations among the scientists in South East Asian region as well as merging connectivity between developed and developing nations' researchers, veterinarians and journalists. Cindy spent ten days in the gulf, assisting the scientists and volunteers during dolphin surveys and interviewing local fishers.

v) The 3rd Asia Regional Conference of the Society for Conservation Biology - Asia Section (SCB Asia) pre-conference workshop at the University of Nottingham Malaysia Campus, Semenyih, Malaysia.

Cindy and Anna Norliza attended a workshop on “Enabling conditions towards effective Marine Protected Areas for marine mammals in Asia” organized by the Southeast Asian Marine (SEAMAMM) network from 17-18 August 2014 at the University of Nottingham Malaysia Campus, Semenyih, Malaysia. The goal of the workshop was to gather input on the current status of marine mammals and marine protected areas (MPAs) and to identify features of protected areas that have proven effective in conserving marine mammals in the region. The SDP team were involved in preparing a country report and Cindy presented the East Malaysian (Sabah and Sarawak) section of the report. During the workshop, the group discussed the importance of collecting data on bio-physical and socio-economic, habitat-specific and taxa-specific threats. Discussion were also concentrated on establishing and implementing conservation and

management action plan and its challenges in terms of biological, social, economic and governance for sustainable marine mammal MPAs in South and Southeast Asia. The outcomes from the workshop were communicated at the 3rd International Conference on Marine Mammal Protected Areas (ICMMPA 3) in Adelaide, Australia from 9-11 November 2014.

vi) ASEAN Rescue Training for marine mammal and sea turtle Workshop in Phuket Marine Biological Centre, Thailand

The Veterinary Medical Aquatic animal Research Center of Chulalongkorn University, Thailand organized a workshop from 9 – 13 October 2014 designed to provide participants from South East Asia with knowledge about marine mammal and sea turtle stranding, emergency first response and management of stranded marine mammals and sea turtles. The workshop also aimed to build a network and promote information sharing. Cindy was selected as one of the participants representing Malaysia. Along with three other Malaysians, Cindy prepared a presentation on stranding situations in Malaysia and some of the challenges faced by each research group in the country. A total of 21 participants from Indonesia, Myanmar, Vietnam, the Philippines, Thailand and Cambodia attended the workshop.

3.6 Publications

Collaboration paper with regional scientists on presence of skin nodules in Irrawaddy dolphin populations

In 2009, analysing photographs of identified Irrawaddy dolphins, the Sarawak Dolphin Project documented the presence of large wart-like nodules on the skin of several individuals. Discussions with Dr Marie-Francoise Van Bressem and scientists around the region, led to the discovery that Irrawaddy populations in Sabah and Penang in Malaysia, as well as India and Bangladesh were also exhibiting identical nodules. The two most severely affected dolphins were seen in Kuching, Sarawak and Chilika Lagoon, India, areas strongly impacted by multiple anthropogenic factors. Lesions were sampled in a female that died in a gillnet in Kuching in 2012.

A working paper was submitted to the IWC Scientific Committee Meeting in Korea by Dr Marie-Francoise Van Bressem and Lindsay Porter in early June 2013. The full paper has been published in by Diseases of Aquatic Organisms Journal:

Van Bressem, M.-F., G. Minton, D. Sutaria, N. Kelkar, C. Peter, M. Zulkarnaen, R. M. Mansur, L. Porter, L. Vargas & L. Rajamani (2014) Cutaneous nodules in Irrawaddy dolphins: an emerging disease in vulnerable populations. *Diseases of Aquatic Organisms*, 107, 181-189.

Manuscripts in preparation/submission

One paper first authored by Anna Norliza on dealing with population estimates of humpback dolphins in Kuching Bay has been submitted to Aquatic Mammals for review after initial rejection from Aquatic Conservation: Marine and Freshwater Ecosystems (with the advice to submit it to a marine mammal focused journal). The team has also prepared a paper identifying habitat characteristics and critical areas of Irrawaddy dolphins in Kuching Bay submitted for a special issue on “The Second International Conference on Alfred Russel Wallace” in Biodiversity and Conservation Journal. A third paper is in preparation looking at comparing line transect and photo-ID population estimates of Irrawaddy dolphins in the Similajau National Park and industrial area. Both of these papers in preparation/submission include analysis of data collected during the IWC funding period.

4.0 Report of expenditures

The total budget requested from IWC was MYR 100,200.00 (USD 33,178.81). The first and second payment was made in November 2011 and July 2013, respectively. Due to the exchange rate at the time of the payments, the total budget that we received was MYR 99,236.20. As of September 2013, a total of MYR 97,317.10 (USD 26,874.80) has been spent on salaries, travel, and boat hire as well as expendable equipment as shown on Table 4.1. A total of 97.12% of the total requested budget has been spent (see Appendix 2). The remainder, MYR 1,919.10 is currently in SDP's account under the University's Bursar's office.

Table 4.1: Total budget summary as of September 2013.

Items	Requested from IWC (MYR)	Requested from IWC (USD)	Spent (MYR)	% Spent
Personnel/Salaries	50,000.00	16,556.29	55,059.10	110.12
Travel and boat hire	46,700.00	5,132.45	42,258.00	92.15
Expendable capital equipment	3,500.00	1,158.94		
Total requested from IWC	MYR 100,200.00	USD 33,178.81	MYR 97,317.10	97.12

5.0 Recommendations and conclusions

The funding from IWC's small cetacean fund has enabled us to carry out this project and continued boat-based surveys in Kuching and Similajau areas in the 2012-2013 field seasons as proposed. We have collected a considerable amount of cetacean distributional data, water parameter data, photo-identification of Irrawaddy dolphins and humpback dolphins, as well as fisheries interaction with the cetacean distribution, all of which has been included in this report.

Of a particular interest is the distributional of sightings vs grid cell representation of fishing effort, a first report from SDP on the fishing activities in Kuching Bay. Analysis has shown that unattended gillnets are always within 2km radius of a dolphin group and this suggest the dolphins face high risk of entanglement. As such, we would like to recommend that gillnets are not left unattended for a period longer than one hour in the core areas of cetacean. Another recommendation is to study the daily movement patterns of the cetacean via focal follow or land-based study, to know when they frequent the core areas. This way, we can designate the particular hotspot as a no go zone for fishing activities at certain times of the day or season.

Knowing the important role coastal villagers and school children play in ensuring coastal cetacean are protected and managed, we also suggest conducting more public awareness workshops and talks to instill a greater sense of ownership and responsibility among these key members of the public. A close cooperation with Sarawak Biodiversity Centre has been established in 2014 and we are in the midst of planning several outreach programs in the coastal villagers within the Kuching Bay areas.

While the early and unexplained departure of one of our team members has impacted the project's ability to deliver on the fisheries management objectives that were stated in the original proposal, on the whole we feel that we have had a successful period of work, and we are pleased with the progress made. Two of the team members significantly advanced their professional and

academic development resulting in stronger “home grown” cetacean conservation in Malaysia. Cindy is planning to send an abstract for oral presentation on the “Fisheries interactions and relationship with cetacean distributions in Kuching Bay,” for the 21st Biennial Society for Marine Mammalogy Conference in San Francisco in December 2015. Furthermore, some progress has been made toward community-based conservation and research through our work with fishermen, although this clearly requires further development. We are extremely grateful to the IWC for making this work possible, and we are happy to provide any additional information that may be required to evaluate the effectiveness of our project and our use for the IWC grant.

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Appendix 1

Photographs of activities



Irrawaddy dolphins (*Orcaella brevirostris*) are usually sighted in the river mouths or in the case of this photograph, very close to shore.



An adult Irrawaddy dolphin seen swimming closely with its calf in the estuary of Kuching Bay in this photo. This adult has been photo-identified since a dolphin-watch trip by Gianna Minton in 2007.



A pair of finless porpoises (*Neophocaena phocaenoides*) seen in Bintulu region. This is a very elusive species in our study area but on this occasion in April 2013, the group was unconcerned with our presence.



Indo-Pacific humpback dolphins (*Sousa chinensis*) mother and calf observed in August 2012 on the eastern side of our study area, the Bako-Buntal bay.



Cindy Peter giving a talk on cetaceans in Sarawak to members of Malaysian Nature Society (MNS), governmental staff and students at Sarawak Biodiversity Centre in October 2014.
Photo courtesy of: Sarawak Biodiversity Centre



Cindy Peter giving a lecture on the biology and research of cetaceans to students of the Universiti Malaysia Sarawak Oceanography program in 2013 and 2014.



Anna Norliza, Cindy and other Asian researchers at the “Enabling conditions towards effective Marine Protected Areas for marine mammals in Asia Workshop” at the University of Nottingham Malaysia Campus, Semenyih, Malaysia.
Photo courtesy of: Putu Liza Kusuma Mustika



Participants, organisers and speakers for the “ASEAN rescue training for Marine Mammal and Sea Turtle Workshop” held at Phuket Marine Biological Centre, Thailand.
Photo courtesy of: Chulalongkorn University, Thailand



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26/Jan/12	AR20008392	206283	AR Direct Cash Journal	0.00	74,718.42	
26/Apr/12	AP20009161	20249251	BAYARAN ELAUN PEMBANTU PENYELIDIK AKAUN KONTRA BAGI BULAN APRIL 2012. -RHB BANK BERHAD	1,416.25	0.00	0000014022
10/May/12	AP20009259	20249871		384.00	0.00	0000000254
14/May/12	AP20009289	20250023	CARUMAN SOCSCO BULAN APRIL 2012 BG PEMBANTU PENYELIDIK.	34.90	0.00	0000000255
23/May/12	AP20009371	20250512	BAYARAN GAJI PEMBANTU PENYELIDIK BG BULAN MEI 2012.	1,416.25	0.00	0000014022
13/Jun/12	AP20009553	20251654	CARUMAN KWSP BULAN JUN 2012 BG PEMBANTU PENYELIDIK.	384.00	0.00	0000000254
13/Jun/12	AP20009553	20251673	CARUMAN SOCSCO BULAN MEI 2012 BG PEMBANTU PENYELIDIK.	34.90	0.00	0000000255
27/Jun/12	AP20009666	20252698	BAYARAN GAJI PEMBANTU PENYELIDIK AKAUN KONTRA BAGI BULAN JUN 2012.	1,416.25	0.00	0000014022
12/Jul/12	AP20009838	20253615	CARUMAN KWSP BULAN JULAI 2012 BG PEMBANTU PENYELIDIK.	384.00	0.00	0000000254
16/Jul/12	AP20009866	20253795	CARUMAN SOCSCO BULAN JUN 2012 BG PEMBANTU PENYELIDIK.	34.90	0.00	0000000255
30/Jul/12	AP20009946	20254706	BAYARAN GAJI PEMBANTU PENYELIDIK AKAUN KONTRA BAGI BULAN JULAI 2012.	1,416.25	0.00	0000014022
6/Aug/12	AP20010039	20255971	CARUMAN KWSP BULAN OGOS 2012 BG PEMBANTU PENYELIDIK.	384.00	0.00	0000000254
6/Aug/12	AP20010039	20255997	CARUMAN SOCSCO BULAN JULAI 2012 BG PEMBANTU PENYELIDIK.	34.90	0.00	0000000255
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11/Sep/12	AP20010222	20257471	CARUMAN KWSP BULAN SEPTEMBER 2012 BG PEMBANTU PENYELIDIK.	888.00	0.00	0000000254
12/Sep/12	AP20010232	20257528	CARUMAN SOCSCO BULAN OGOS 2012 BG PEMBANTU PENYELIDIK.	81.00	0.00	0000000255



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21/Sep/12	AP20010258	20258032	BAYARAN BAGI TUNTUTAN BALIK PERBELANJAAN KERJA LAPANGAN COASTAL CETACEAN DI SANTUBONG. -RAHAH BINTI MOHAMAD YAKUP	2,100.00	0.00	0000014221
25/Sep/12	AP20010271	20258200	BAYARAN BALIK MENDAHULUKAN WANG SENDIRI UNTUK TUJUAN PEMBAYARAN KEPERLUAN KERJA PENYELIDIKAN DI KUALA NYALAU, BINTULU. -CINDY PETER	976.00	0.00	0000017900
26/Sep/12	AP20010271	20258265	BAYARAN GAJI PEMBANTU PENYELIDIK AKAUN KONTRA BAGI BULAN SEPTEMBER 2012.	3,275.00	0.00	0000014022
26/Sep/12	AP20010349	20258264	PEMBAYARAN TIKET KAPAL TERBANG BAGI KAKITANGAN MENGIKUT KELAYAKAN PEGAWAI MASING-MASING TUJ:RUJUK LAMPIRAN -K	1,698.00	0.00	0000000048
30/Sep/12	AR20010340	AR20010340	Pelarasan wang pendahuluan bagi Nordiana Ahmad Br. 20249820 (RM612.00), Rahah Br. 20256226 (RM2,800.00) Soubakeavathi Br. 20253451 (RM600.00) & Sylvester Wielding Br. 20239279 (RM4,011.00). Rujuk lampiran.	2,800.00	0.00	
11/Oct/12	AP20010416	20259325	CARUMAN KWSP BULAN OKTOBER 2012 BG PEMBANTU PENYELIDIK.	888.00	0.00	0000000254
12/Oct/12	AP20010447	20259501	BAYARAN PENGINAPAN- CINDY PETER TUJ: PROJEK SWK DOLPHIN -P	1,600.00	0.00	0000026285
12/Oct/12	AP20010447	20259501	BAYARAN PENGINAPAN- CINDY PETER TUJ: PROJEK SWK DOLPHIN -P	0.00	320.00	0000026285
15/Oct/12	AP20010447	20259553	BAYARAN PENGINAPAN- CINDY PETER TUJ: PROJEK PENYELIDIKAN DOLPHIN -P	1,200.00	0.00	0000026285
17/Oct/12	AP20010508	20259768	CARUMAN SOCSO BULAN SEPTEMBER 2012 BG PEMBANTU PENYELIDIK.	81.00	0.00	0000000255
22/Oct/12	AP20010508	20260306	BAYARAN BALIK MENDAHULUKAN WANG SENDIRI UNTUK TUJUAN SEWA BOT KERJA LAPANGAN COASTAL CETACEAN. -	2,100.00	0.00	0000014221
25/Oct/12	AP20010517	20260615	BAYARAN GAJI PEMBANTU PENYELIDIK AKAUN KONTRA BAGI BULAN OKTOBER 2012.	3,275.00	0.00	0000014022



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14/Nov/12	AP20010673	20261872	CARUMAN KWSP BULAN NOVEMBER 2012 BG PEMBANTU PENYELIDIK.	888.00	0.00	0000000254
19/Nov/12	AP20010692	20262209	CARUMAN SOC SO BULAN OKTOBER 2012 BG PEMBANTU PENYELIDIK.	81.00	0.00	0000000255
22/Nov/12	AP20010752	20262623	BAYARAN GAJI PEMBANTU PENYELIDIK AKAUN KONTRA BAGI BULAN NOVEMBER 2012.	3,275.00	0.00	0000014022
30/Nov/12	AR20010690	AR20010690	Pelarasan wang pendahuluan bg Andrew Alex Br.20256137 (RM3,474.00) John Mathai Br.2025777 (RM1,388.11) & Narayanan Br.20252591 (RM5,000.00). Rujuk lampiran.	3,474.00	0.00	
1/Dec/12	AP20010847	20263102	CARUMAN KWSP BULAN DISEMBER 2012 BG PEMBANTU PENYELIDIK.	888.00	0.00	0000000254
3/Dec/12	AP20010847	20263149	CARUMAN SOC SO BULAN NOVEMBER 2012 BG PEMBANTU PENYELIDIK.	81.00	0.00	0000000255
11/Dec/12	AP20010960	20263972	BAYARAN GAJI PEMBANTU PENYELIDIK AKAUN KONTRA BAGI BULAN DISEMBER 2012.	3,275.00	0.00	0000014022
12/Dec/12	AP20010945	20264299	BAYARAN BALIK KERANA MENDAHULUKAN WANG UNTUK PERJALANAN PEMBANTU PENYELIDIK BAGI PERJALANAN PADA 14-18 MEI DAN 13-17 OGOS 2012. (CINDY PETER)	50.00	0.00	0000000196
31/Dec/12	AP20011210	20265941	CARUMAN KWSP BULAN JANUARI 2013 BG PEMBANTU PENYELIDIK.	888.00	0.00	0000000254
31/Dec/12	AP20011210	20265948	CARUMAN SOC SO BULAN DISEMBER 2012 BG PEMBANTU PENYELIDIK.	81.00	0.00	0000000255
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14/Feb/13	AP20011641	20268454	CARUMAN KWSP BULAN FEBRUARI 2013 BG PEMBANTU PENYELIDIK.	384.00	0.00	0000000254
14/Feb/13	AP20011641	20268511	CARUMAN SOCSO BULAN JANUARI 2013 BG PEMBANTU PENYELIDIK.	34.90	0.00	0000000255
27/Feb/13	AP20011691	20269411	BAYARAN GAJI PEMBANTU PENYELIDIK AKAUN KONTRA BAGI BULAN FEBRUARI 2013.	1,416.25	0.00	0000014022
11/Mar/13	AP20011792	20270200	CARUMAN KWSP BULAN MAC 2013 BG PEMBANTU PENYELIDIK.	384.00	0.00	0000000254
12/Mar/13	AP20011792	20270229	CARUMAN SOCSO BULAN FEBRUARI 2013 BG PEMBANTU PENYELIDIK.	34.90	0.00	0000000255
27/Mar/13	AP20011887	20271258	BAYARAN ELAUN PEMBANTU PENYELIDIKAN BAGI BULAN MAC 2013 MENGGUNAKAN PERUNTUKAN AKAUN KONTRA. - RHB BANK BERHAD	2,832.50	0.00	0000014022
4/Apr/13	AP20011952	20271614	BAYARAN PENGINAPAN- CINDY PETER TUJ: SARAWAK DOLPHIN PROJECT RHB: 211 146 500 342 36	1,280.00	0.00	0000026285
8/Apr/13	AP20011989	20271758	CARUMAN KWSP BULAN APRIL 2013 BG PEMBANTU PENYELIDIK.	768.00	0.00	0000000254
9/Apr/13	AP20011989	20271806	CARUMAN SOCSO BULAN MAC 2013 BG PEMBANTU PENYELIDIK.	69.80	0.00	0000000255
22/Apr/13	AP20012047	20272576	BAYARAN TUNTUTAN PERJALANAN BULAN APRIL 2013 MENGGUNAKAN PERUNTUKAN AKAUN KONTRA COASTAL CETACEAN. - CINDY PETER	150.00	0.00	0000017900
22/Apr/13	AP20012047	20272577	BAYARAN TUNTUTAN PERJALANAN BULAN APRIL 2013 MENGGUNAKAN PERUNTUKAN AKAUN KONTRA COASTAL CETACEAN. -JENNY NGEIAN MACHAU	78.00	0.00	0000025633
25/Apr/13	AP20012175	20273125	BAYARAN BG T/P APRIL 2013 MENGGUNAKAN PERUNTUKAN AKAUN KONTRA COASTAL CETACEAN.	192.00	0.00	0000017900
26/Apr/13	AP20012092	20273172	BAYARAN GAJI PEMBANTU PENYELIDIK BAGI BULAN APRIL 2013 MENGGUNAKAN PERUNTUKAN AKAUN AMANAH KECIL (AKAUN KONTRA).	2,832.50	0.00	0000014022



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6/May/13	AP20012176	20273672	BAYARAN BG T/P APRIL 2013 MENGGUNAKAN PERUNTUKAN AKAUN KONTRA COASTAL CETACEAN.	192.00	0.00	0000025633
6/May/13	AP20012176	20273673	BAYARAN BG T/P APRIL 2013 MENGGUNAKAN PERUNTUKAN AKAUN KONTRA COASTAL CETACEAN.	192.00	0.00	0000022552
6/May/13	AP20012176	20273675	BAYARAN BAGI MENDAHULUKAN WANG SENDIRI BAGI TUJUAN PEMBELIAN TIKET KAPAL TERBANG PEMBANTU PENYELIDIK UNTUK TUJUAN PENYELIDIKAN DI KAMPUNG KUALA NYALAU BINTULU PADA 1 HINGGA 5 APRIL 2013.	990.00	0.00	0000022552
10/May/13	AP20012241	20273896	CARUMAN KWSP BULAN MEI 2013 BG PEMBANTU PENYELIDIK.	768.00	0.00	0000000254
21/May/13	AP20012298	20274436	CARUMAN SOCSO BULAN APRIL 2013 BG PEMBANTU PENYELIDIK.	69.80	0.00	0000000255
22/May/13	AP20012298	20274620	BAYARAN PENGINAPAN ~ CINDY PETER TUJ : PROJEK PENYELIDIKAN DOLPHIN PO : 2/86121 BANK : RHB 21114650034236 ~ DAMAI RAINFOREST RESORT S/B FAX: 082-846486	1,280.00	0.00	0000026285
28/May/13	AP20012330	20274945	BAYARAN GAJI PEMBANTU PENYELIDIK & ELAUN PASCASISWAZAH BG BULAN MEI 2013.	1,416.25	0.00	0000014022
31/May/13	AR20012440	AR20012440	Pelarasan wang pendahuluan bagi Cindy Peter Br.20271948 (RM2,800.00). Rujuk lampiran.	2,800.00	0.00	
7/Jun/13	AP20012435	20275343	BAYARAN PENGINAPAN ~ CINDY PETER TUJ : PROJEK PENYELIDIKAN DOLPHIN PO : 2/86926 BANK : RHB 21114650034236 ~ DAMAI RAINFOREST RESORT S/B FAX: 082-846486	1,280.00	0.00	0000026285
12/Jun/13	AP20012473	20275634	CARUMAN KWSP BULAN JUN 2013 BG PEMBANTU PENYELIDIK.	384.00	0.00	0000000254
18/Jun/13	AP20012544	20275852	CARUMAN SOCSO BULAN MEI 2013 BG PEMBANTU PENYELIDIK.	34.90	0.00	0000000255



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Date	Journal ID	Source	Description	Debit	Credit	Vendor ID
23/Jul/13	AR20012828	254776	AR Direct Cash Journal	0.00	24,517.78	
25/Jul/13	AP20012835	20278556	BAYARAN ELAUN PEMBANTU PENYELIDIK BAGI BULAN JULAI 2013 MENGUNAKAN PERUNTUKAN AKUAN KONTRA.	4,603.00	0.00	0000014022
29/Jul/13	AP20012857	20278690	BAYARAN BALIK MENDAHULUKAN WANG SENDIRI BAGI TUJUAN BAYARAN SEWA BOT & PETROL MENGGUNAKAN PERUNTUKAN COASTAL CETACEAN. -CINDY PETER	2,800.00	0.00	0000017900
5/Aug/13	AP20012956	20279187	CARUMAN KWSP BULAN OGOS 2013 BG PEMBANTU PENYELIDIK.	1,248.00	0.00	0000000254
27/Aug/13	AP20012993	20280628	CARUMAN SOCSO BULAN JULAI 2013 BG PEMBANTU PENYELIDIK.	112.60	0.00	0000000255
29/Aug/13	AP20013014	20280651	BAYARAN ELAUN PEMBANTU PENYELIDIK BAGI BULAN OGOS 2013 MENGUNAKAN PERUNTUKAN AKUAN KONTRA.	1,062.25	0.00	0000014022
9/Sep/13	AP20013137	20281340	BAYARAN PENGINAPAN ~ CINDY PETER TUJ : PROJEK PENYELIDIKAN DOLPHIN PO : 2/88966 BANK : RHB 21114650034236 ~ DAMAI RAINFOREST RESORT S/B FAX: 082-846486	960.00	0.00	0000026285
12/Sep/13	AP20013149	20281669	CARUMAN KWSP BULAN SEPTEMBER 2013 BG PEMBANTU PENYELIDIK.	288.00	0.00	0000000254
12/Sep/13	AP20013159	20281754	CARUMAN SOCSO BULAN OGOS 2013 BG PEMBANTU PENYELIDIK.	25.90	0.00	0000000255
19/Sep/13	AP20013193	20282169	BAYARAN TUNGGGAKAN GAJI BULAN JUN 2013. (BAJET TIDAK MENCUKUPI PADA BULAN JUN 2013) -JENNY NGEIAN MACHAU	1,416.25	0.00	0000025633
19/Sep/13	AP20013193	20282174	BAYARAN TUNTUTAN PERJALANAN BULAN SEPTEMBER 2013 MENGUNAKAN PERUNTUKAN AKAUN KONTRA COASTAL CETACEAN. -ANNA NORLIZA ZULKIFLI POH	372.00	0.00	0000022552
19/Sep/13	AP20013193	20282176	BAYARAN TUNTUTAN PERJALANAN BULAN SEPTEMBER 2013 MENGUNAKAN PERUNTUKAN AKAUN KONTRA COASTAL CETACEAN. - JENNY NGEIAN MACHAU	284.00	0.00	0000025633
19/Sep/13	AP20013193	20282179	BAYARAN TUNTUTAN PERJALANAN BULAN SEPTEMBER 2013 MENGUNAKAN PERUNTUKAN AKAUN KONTRA COASTAL CETACEAN. - CINDY PETER	584.00	0.00	0000017900



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Date	Journal ID	Source	Description	Debit	Credit	Vendor ID
26/Sep/13	AP20013221	20282689	BAYARAN GAJI/ELAUN PEMBANTU PENYELIDIK AKAUN KONTRA BAGI BULAN SEPTEMBER 2013.	3,186.75	0.00	0000014022
26/Sep/13	AP20013227	20282700	BAYARAN BALIK MENDAHULUKAN WANG SENDIRI BAGI TUJUAN SEWA BOT SEMASA KERJA LAPANGAN DI KUALA NYALAU, BINTULU PADA 9 HINGGA 12 SEPTEMBER 2013. -CINDY PETER	3,900.00	0.00	0000017900
30/Sep/13	AR20013323	AR20013323	Pelarasan wang pendahuluan bg Alvin Yeo Br.20281318 (RM2,400) Cindy Peter Br.20280521 (RM1,400) John Mathai Br.20276690 (RM6,129) & Mohamad Hasri Br.20279176 (RM5,412.50), Rujuk lampiran.	1,400.00	0.00	
11/Oct/13	AP20013388	20283839	CARUMAN KWSP BULAN OKTOBER 2013 BG PEMBANTU PENYELIDIK.	864.00	0.00	0000000254
30/Oct/13	AP20013518	20285062	CARUMAN SOCSO BULAN SEPTEMBER 2013 BG PEMBANTU PENYELIDIK.	77.70	0.00	0000000255
Beginning Balance		0.00	Closing Balance	0.00	Ending Balance	0.00
				Total Activity	26,946.72	