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Marine mammals observations in the Gulf of Guayaquil on the south coast of Ecuador in May–June 2013

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ABSTRACT. Marine mammal (MM) observations were carried out during seismic survey of a 37 km^2 area in water depths ranging from 37–58 m in the Gulf of Guayaquil in May– June 2013. Twenty-one encounters with individual MMs or groups of MMs were recorded during 216 hours of observer effort. Bottlenose dolphins were most frequently seen, but observers also recorded the presence of striped dolphins and of humpback and killer whales and of sea lions. This short paper presents companion meteorological observations and considers the influence of weather and other environmental conditions on the frequency of the MM encounters.

KEY WORDS: Ecuador, the Gulf of Guayaquil, Santa Clara Island, marine mammals.

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Наблюдения за морскими млекопитающими в заливе Гуаякиль на южном побережье Эквадора в мае–июне 2013 г.

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РЕЗЮМЕ. Наблюдения за морскими млекопитающими (ММ) выполнялись в рамках сейсморазведочных работ на 37 км^2 площадке с глубинами 37–58 м в акватории залива Гуаякиль у южного побережья Эквадора в мае–июне 2013 г. Всего за 216 часов наблюдений зарегистрирована 21 встреча ММ 5 видов. В работе представлены данные по объему метеорологических наблюдений, рассмотрено влияние внешних условий на частоту встреч ММ, приведен краткий обзор данных учетов по каждому виду.

КЛЮЧЕВЫЕ СЛОВА: Эквадор, залив Гуаякиль, о-в Санта-Клара, морские млекопитающие.

Introduction

The interest for the environmental systems of the Gulf of Guayaquil caused by activities in geological prospecting and, inter alia, seismic survey operations create a noticeable disturbance factor for marine mammals and seabirds, irrespectively of their permanent residence in this area or occurrence here during migration periods.

The surface area of the Gulf of Guayaquil is more than 12 000 km^2, this is the most extensive estuary of the Pacific shore of the South America. In the north, Guayas River discharges into the gulf. The largest of the gulf islands, Puna Island is situated in its mouth. Santa Clara Island, a small rocky island with unique seabird colonies is situated in the central part of the gulf, 30 km off shore. Back in 1999, Santa Clara Island was declared a national wildlife reserve. Since 2002, it is a part of the Ramsar Convention of wetland sites.

Humpback whales migration routes pass through the Gulf of Guayaquil. The main area of the MM synoecium is the northern part of the gulf (Santa Elena Peninsula) and the coastal area of the Puna Island; the factors determining this are the shoreline configuration, water depth and bottom topography.

To understand the distribution and abundance of the five species of MMs seen in the area of our survey, it is important to describe the overall marine ecosystem in the coast water of Ecuador. Therefore, brief mention will be made of the available data on other species of cetaceans and of other species of pinnipeds that have been reported in the Gulf of Guayqauil.

The total number of whale species (Cetacea) recorded by various researchers off the coast of Ecuador is 15, plus four species of pinnipeds (Palacios *et al.,* 1997; Alava & Carvajal, 2005; O'Hern *et al*., 2010; Félix *et al*., 2011). Among the cetaceans, four species of baleen whales and 11 species of dolphins and toothed whales were encountered in Ecuadorian waters; among the pinnipeds (carnivorous seals and sea lions), three species belong to the Otariidae (eared seals), and one, to the Phocidae (earless or true seals). The maximum number of marine mammals species was encountered off the coast of the province of Santa Elena, north of Guayaquil. The commonest species were Humpback Whale (*Megaptera novaeangliae*) (27.5%), Short-beaked Common Dolphin (*Delphinus delphis*) (12.3%), Southern Sea Lion *(Otaria flavescens*) (12.3%), Bottlenose Dolphin (*Tursiops truncatus*) (10.14%), and Pan-

tropical Spotted Dolphin (*Stenella attenuata*) (9.42%). All the species, except bottle-nose dolphins, demonstrated seasonal variations in numbers, connected with the availability of food stock and/or reproductive cycle.

Other, less common cetacean species that have been reported for the Ecuador continental margin areas are: Sei Whale (*Balaenoptera borealis*), Bryde's Whale (*Balaenoptera edeni*), Striped Dolphin (*Stenella coerulealba*), Risso's Dolphin (*Grampus griseus*), Short-finned Pilot Whale (*Globicephala macrorhynchus*), Sperm Whale (*Physeter macrocephalus),* Dwarf Sperm Whale (*Kogia sima*), Orca or Killer Whale (*Orcinus orca*), Pygmy Killer Whale (*Feresa attenuate*), and Cuvier's Beaked Whale (*Ziphius cavirostris*). Pinnipeds include Galapagos Fur Seal (*Arctocephalus galapagoensis*) and Galapagos Sea Lion (*Zalophus wollebaeki*) (Palacios *et al*., 1997). Southern Elephant Seals *Mirounga leonina* or *M.angustirostris* were encountered offshore in the Gulf of Guayaquil twice (in 1998 and 2002, Alava & Carvajal, 2005), and the only encounter with a Blue Whale *Balaenoptera musculus* in the last 15 years in the Gulf of Guayaquil took place in 2007, 2 nautical miles (nm) to the west of the Santa Elena Peninsula (2°12′08″S, 81°02′31″W) (Félix *et al*., 2007).

As to the vicinity of the Santa Clara Island and the area of El Campo Amistad where we performed our observations, according to the published accounts, two species of cetaceans permanently reside here (Humpback Whale, *Megaptera novaeangliae*, and Bottlenose Dolphin, *Tursiops truncatus*), and one species of pinnipeds (Southern Sea Lion, *Otaria flavescens*) (Yturralde & Suarez, 1998; Hurtado *et al.*, 1998; Pinos *et al.*, 2010). The biology of those species is sufficiently well-known, so we shall consider each of them in more detail.

Annually, the southern population of Humpback Whales migrates to their breeding grounds in south-eastern Pacifica, where they aggregate off the coasts of Ecuador, Columbia, and Panama (Dawbin, 1966; Scheidat *et al*., 2000; Félix & Haase, 2001; O'Hern *et al*., 2010). Humpback Whales are encountered off the coast of Ecuador from May till November, but their numbers usually peak in July and August (Félix & Haase, 2001, 2005). It is within those time limits when the whales are usually observed in the vicinity of the Santa Clara Island; the animals stay at 25 to 60 m depths (mean depth 45.7 m; SD = 18.6) 20–30 km off shore (Yturralde & Suárez, 1998). According to the latest population survey data obtained in 2010 in the vicinity of Salinas (Salinas, St. Elena Peninsula) and presented in the annual report to the Ministry of Environment of Ecuador, 839 Humpback Whales were recorded as present in this area (Alava *et al*., 2011).

Bottlenose dolphins, though, seem to be the only species of marine mammals permanently residing in the Gulf of Guayaquil. According to various estimates, the local population size amounts to approximately 2500 individuals. These animals fall into two ecological types: littoral (the Puna Island, the estuary of the Guayas River) and oceanic ones (Félix, 1994). Evidently, it is the latter type that is mainly encountered off the coast of the Santa Clara Wildlife Reserve and seaward. The size of migrating groups can vary from 50 to 160 and more animals (Stevenson, 1981).

Southern Sea Lions periodically migrate to the coast of Ecuador. This may be connected with temperature anomalies caused by the El Niño current. Small resident groups of males (~10–30 animals) were observed most commonly in two points: near Santa Clara Island and Punta Brava-Salinas. However, there were no hypotheses about the existence of permanent reproductive colonies there so far. All in all, at least 13 south sea lions locations (confirmed by visual observations, findings of skeletons or skulls) are known (Félix *et al*., 1994). All the above locations are evidently isolates; however, permanent or nearly permanent groups (at least 10 animals) reside in the Santa Clara national natural reserve in the Gulf of Guayaquil (03°10′S, 80°27′W); fishermen reported they saw young animals there in caves as well (Calle & Suarez, 2003; B. Haase, pers. comm.). Another group of 12 Southern Sea Lions was encountered on Punta Brava, Salinas (2°12′S, 81°00′W) on the coast of Ecuador (Félix, 2002).

Thus, among the species under consideration only Bottlenose Dolphins and, possibly, Southern Sea Lions can be permanent residents of the Gulf of Guayaquil waters. The other species visit here on a seasonal basis or migrate through from time to time.

Purposes and Tasks of Research

Marine mammals were observed within the framework of seismic survey performed by the Russian OJSC "Sevmorgeo" in the vicinity of the Tumbes Bay, Gulf of Guayaquil off the south coast of Ecuador. The area under survey was situated completely off-shore. To the north-east, the area bordered the 4-mile buffer zone of the Santa Clara Island Wildlife Reserve (Fig. 1). The geographical coordinates of the nodal points are shown in the Table 1.

The size of the area under survey was 37 km^2. The distance between the shore and the *Tavr* base vessel (BV) mooring was 29 km (16.6 nm), that to the Puna Island, 33 km (18.3 nm), to the Santa Clara island, 8.5 km (4.7 nm). According to the charts of the Gulf of Guayaquil printed in 1990 by the Chief Directorate for Navigation & Oceanography, depths within the borders of the area under survey varied from 37 to 58 m.

The mission of the observer who worked on board the *Tavr* BV included:

Daytime detection of MMs on the way to the seismic survey performance area and during work on the seismic survey profiles;

The MM species identification and quantitative assessment;

Recording of the animals' behavior;

Photo and/or video recording of the research subjects.

The schedule of the *Tavr* BV during the summer survey period of the year 2013 is presented in Table 2.

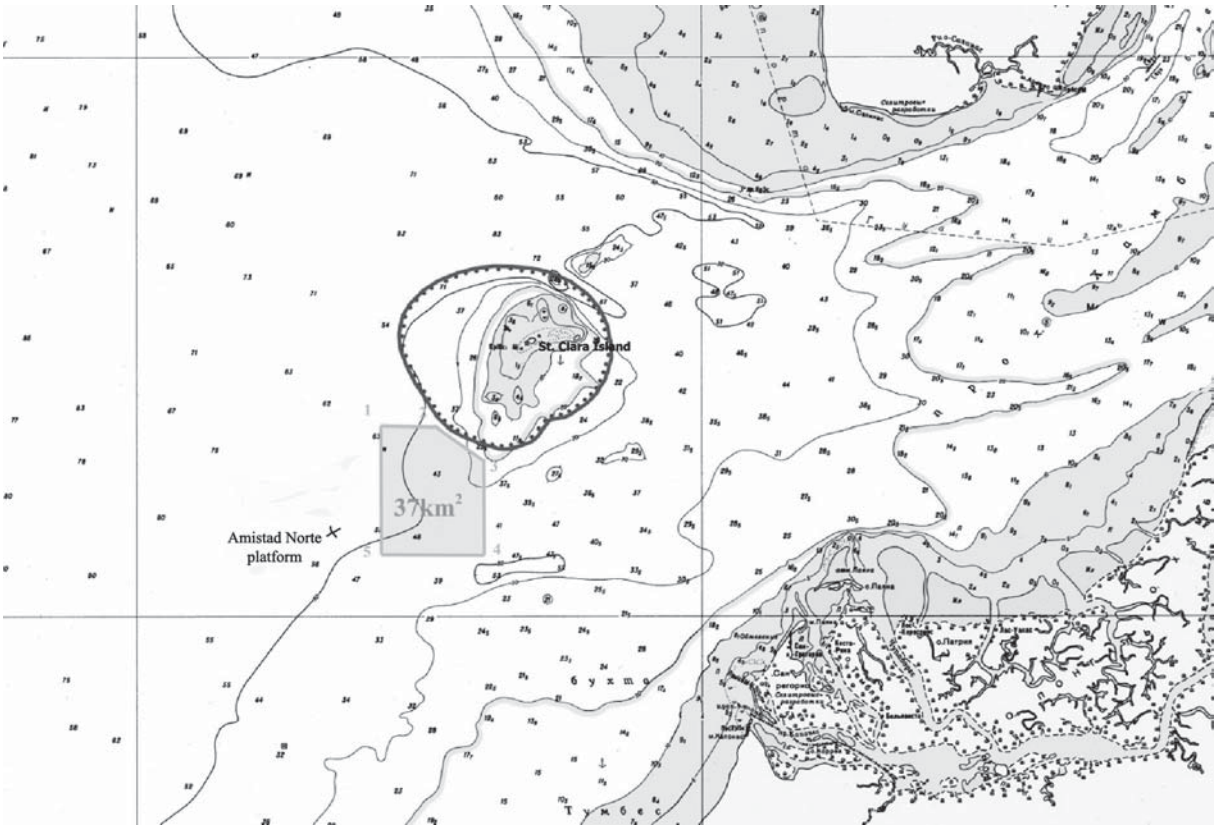

Fig. 1. Location of the area under survey. Grey rectangle: the survey area. Black border: the border of the Santa Clara Island wildlife Reserve buffer area.

Table 1. Geographical coordinates of the nodal points of the 37 km² survey area.

Point	Southern latitude	Western longitude
1	3,20314622	80,5026987
2	3,20313057	80,4715575
3	3,216327445	80,4503997
4	3,263912584	80,4503740
5	3,263939927	80,5026691

Table 2. *Tavr* BV work schedule during the 2013 survey period.

Vessel	Activity	Beginning and end
Tavr	Moorage at the Bolivar port, coordinates: S 03° 26745 W 080° 00514	25.03.2013 – 16.05.2013
	Anchorage at the point with the following coordinates: S 03°15.326 W 080° 29.290	17.05.2013 – 20.05.2013
	Shifting to a new point	20.05.2013
	Anchorage at the point with the following coordinates: S 03° 13.479 W 080° 29.172	20.05.2013 – 02.06.2013
	Moorage at the Bolivar port, coordinates: S 03° 16.0012; W 080° 03.3117	Since 02.06.2013

Table 3. Summary of observations performed in the course of marine mammals monitoring in the seismic survey area in May–June 2013.

Parameter	Volume of Observations
Total number of single observations performed	147 (100%)
Total number of observation hours	216

Table 4. Meteorological observations performed in the seismic survey area and weather conditions in May–June 2013.

Parameter	Volume of Observations
Total number of continuous observation days	17
Number of days with precipitation in the form of rain	3 (17%)
Number of days with fog (mist)	11 (65%)
Predominant wind directions	NW - WNW
Weekly variations of sea surface temperature (C°)	24 – 23 – 25
Number of days when wind speed was less than 0.5 m/s (calm sea)	4
Number of days when wind speed was more than 5 m/s	6
Number of days when wind speed was more than 10 m/s (sea state grade exceeds 4)	0

Material and Methods

The MM were detected visually with the help of Pentax 8-20X24 binoculars and a T-80A 30–60 X telescope. The detection data were recorded in a diary with the purpose of preserving the continuity of observations. Afterwards they were entered into a laptop computer; the actions were coordinated with the project contractors via vessel radio stations.

Observations were performed from the vessel radar platform or command bridge. Such a position ensured at least 270° field of vision ahead of the ship; the *Tavr* BV wheelhouse height above sea surface was 12.8 m. When marine mammals were detected, observers moved from the wheelhouse to the open deck areas that were most suitable for observations at that moment.

Observations were performed on a regular basis in daylight hours (from 5.30 a.m. till 07.00 p.m.), but when the seismic equipment was in operation, observations were performed continuously as much as visibility allowed. The BV location permitted one to track the animals location throughout the work area, to assess distance to them, and to calculate their motion direction and other aspects of their behavior (see Appendix).

The detection and recording of the marine mammals were performed by the biologist-observer and the crew members of the *Tavr* BV, as well as those of the work boats (WB). In addition, information about the MM presence or absence within the water area borders was received in the process of daily survey of seismic sensors that was performed on motor boats.

Regular log entries during watches were made every two hours. Whereupon the following data were recorded: the vessel location latitude and longitude, the vessel heading, state of the sea by the Beaufort scale, the observation period (daylight hours or hours of darkness), visibility, the shining of the sea surface and its location, the nature of the vessel activity.

When sea mammals were detected, an annotated entry was made to the observations log, and the following data were recorded: the coordinates of the point of encounter, the animal species, the number of animals, their behavior, the directions from which they appeared and where they are heading, the distance between them and the vessels. Primary identification of marine mammals was based on several generally accepted field guides (Jefferson *et al*., 1993; Merlen, 1995; Burdin *et al*., 2009).

Weather conditions were recorded at 6 hours intervals (4 times daily) by the thermometer/hygrometer, vessel instruments, and visually. The entries included data on cloud cover (%), temperature (°C), humidity (%), wind speed (m/s) and direction, the presence and nature of precipitation, fog, etc.

The number of observations performed in the process of marine mammals monitoring are summarized in Table 3.

In general, weather conditions during the survey work were favorable for observations and relatively stable. The day/night temperature difference did not exceed 14°C; the maximum wind speed, as a rule, was 4–5 m/s. The predominant winds were NW-WNW; however, by the end of the observation period, the wind direction changed to W and even SW. According to the INOCAR data, the temperature of surface ocean waters varied within the limits of 2ºC (www.inocar.mil.ec, 2014). The meteorological observations data are summarized in Table 4.

Table 5. Number of encounters with marine mammals and the number of animals recorded in the survey work area from board the *Tavr* BV and the work boats (WB).

Item No	Vessel	Marine Mammals Species	Number of Encounters	Total Number of Animals
1	WB	unidentified toothed whales (dolphins)*	1	12
2	Tavr	unidentified toothed whales (dolphins)*	1	4
3	Tavr	Striped Dolphin, *Stenella coeruleoalba*	1	≥30
4	Tavr	Bottlenose Dolphin, *Tursiops truncatus*	3	≥80
5	WB	Humpback Whale, *Megaptera novaeangliae* *	1	1
6	WB	Killer Whale, *Orcinus orca*	3	9
7	Tavr	(Southern) Sea Lion, *Otaria flavescens*	8	2
8	Tavr	Unidentified seal	2	3
9	Tavr	Unidentified seal	1	1
TOTAL:		5(7)	21	≥140

* animals detected by non-staff observers.

Marine Mammal Recording Results

More than 140 MMs were sighted during the period of seismic survey. But it is virtually impossible to specify the precise number of individuals encountered when large shoals of dolphins were registered from the board of the *Tavr* BV and the work boats, during vessels shifting, and in the work area during the period of observations, namely from May 12 till June 2, 2013. There were 21 encounters with animals of five species (Tab. 5; Appendix).

In contrast, the number of marine mammals encounters by BV and work boats outside times or areas of seismic survey during the observations period was greater by an order of magnitude. Although no controlled exposure experiments were carried out, some groups of MMs apparently avoided the 37 km^2 field area when active seismic survey was going on there.

As it can be seen from the analysis of obtained data, weather conditions did not impact the success of marine mammals recording in a substantial way. This can be explained by a stable weather, as well as absence of weather abnormalities: storm, thick fog, etc. Permanent ripples were not a major problem, but when wind grew stronger wavelets and "white caps" made the observer's tasks more complicated, especially at long distances. Obtained data series do not permit us to speak positively about the impact of the above factors on the completeness of records; however, we can assert that sea state increases from 0 to 1.5 did not seem to influence the number of MM encounters. No regularity had also been revealed between changes in the temperature regime of surface waters in this water area and the succeeding appearance of MM.

Here is a brief analysis of observation occasions in respect of each species of the MM.

Most observations were performed at a distance of 400–700 m. Therefore, it was not always possible to identify the species of animals with certainty, especially for non-staff observers. However, in the majority of cases identification did not raise any doubts.

The behavior of the Bottlenose Dolphins (*Tursiops truncatus* Montagu, 1821), observed from board of *Tavr* BV and the escort vessels on May 22 and 31 was typical for this species. The animals formed compact groups numbering from 30 to 50 and followed the vessels at a distance from 600 to 700 m at an uniform speed without jumping above water. Uniform coloring and a characteristic shape of the dorsal fin permitted one to identify this cetacean species easily enough. It should be noted that both cases of Bottlenose Dolphins encounters in the area under survey coincided with the arrival of large shoals of schooling fishes.

Striped Dolphins (*Stenella couruleoalba* Meyen, 1833) were encountered only once, on May 19. There was a group of approximately 40 animals. Similar to Bottlenose Dolphins, they moved in a thick group at a rather high speed, about 300–400 m from the BV. Relatively small size, traces and their habit of jumping (sometimes they switch to «hydroplaning») permitted us to identify this species.

Unidentified dolphins. On May 12, a group of 12 dolphins was detected from a work boat during a test of sources. They moved parallel to the boat. Judging by their manner of moving and behavior, they were most probably Bottlenose dolphins. But a group of four animals encountered on the 20th of May cannot be identified on the basis of available information.

Other groups of large dolphins 3 or 5 animals strong were identified as Killer Whales (*Orcinus orca* Linnaeus, 1758). These groups were detected twice during the 19th of May. The animals moved in a line at a distance of 150–200 m from each other; they jumped highly from time to time. These orcas may have been in pursuit of a large shoal of school fish. Another encounter of a Killer Whale was recorded by A. Yakovlev on May 26.

Judging by the description, it was a single juvenile animal.

Humpback Whale (*Megaptera novaeangliae* Borowski, 1781). A Humpback Whale was encountered within the survey work area only once by operator R. Douglas from a work vessel. The whale surfaced briefly and then submerged in a manner characteristic for this species. According to literature and reports of our Ecuadorian colleagues, Humpback Whales en mass occur in this water area at least 10–12 days later than the actual date of our work expiry.

Southern Sea Lion (*Otaria flavescens* Shaw, 1800). A single sea lion, and then a pair of them were encountered by the *Tavr* BV more than once. Judging by the constancy of their visits, the work area was within the borders of those animals' individual hunting area.

Unidentified seals: judging by the frequency of encounters, the was probably the same pair of *O. flavescens*, although the occurrence of Galapagos Sea Lion (*Zalophus wollebaeki* Sivertsen, 1953) is possible in this water area as well. On May 27, a playing/courtship behavior of the unidentified couple was recorded.

Conclusions

The general conclusions on the nature of distribution and the numbers of marine mammals in the surveyed area during the period of our observations are as follows:

The diversity of marine mammals species in the surveyed area matched expectations. It was limited to four species of cetaceans and one pinnipedian. Unidentified cetaceans and pinnipeds likely belong to one of the species mentioned above.

The density of the marine mammals population within the borders of the survey area was generally low (there were no mass aggregations). It is confined to the shallowest parts of the water area or the depth drop-off area in the northern part of the surveyed area. Their occurrence within the borders of the area under survey was temporary (possibly, except sea lions). Most probably it was connected with migrations of schooling fish shoals. Transitory penetration of cold surface water masses from the Peru coastline in the second ten-day period of May did not influence noticeably the temperature regime of the bay water, and no visible affect on the frequency of meetings between Bottlenose dolphins and sea lions was found. The latter species appeared relatively regularly during the entire observation period. Striped Dolphins, presumably associated with the open ocean, were also recorded in the bay before the mentioned changes.

The latter meeting is noteworthy for the Santa Clara Island water area. According to the literature, this species was previously reported near Salinas, St. Elena Peninsula, but as a whole, it is not typical of the Gulf of Guayaquil area (Van Waerebeek *et al*., 1998).

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Appendix

Table of observations: vessel locations, ambient conditions and encounters with animals in the process of marine mammal monitoring in the Gulf of Guayaquil on the Pacific Coast of Ecuador in May–June 2013.

Glare amount: NO — none; LI — slight; MO — moderate; SE — strong.
Glare position and the MM detection/motion direction by 12 hours clock face.

DETECTED SPECIES (FAO CLASSIFICATION):
Baleen Whales
HUW — Humpback Whale
Toothed Whales
DBO — Bottle-nose Dolphin
DPN — Pantropical Spotted Dolphin
DST — Striped Dolphin
KIW — Orca; Killer Whale
UTW — Unidentified Tooth Whale
Eared seal
GSL — Galapagos Sea Lion
SSL — Southern Sea Lion
US — Unidentified seal

MOTION IN RELATION TO THE VESSEL:
PE — Perpendicularly
ST — Swim Toward
SA — Swim Away
FL — Flee
SP — Swim Parallel
MI — Mill

OBSERVED ACTIVITY TYPES:
SI — Sink
DI — Dive
LO — Look
SW — Swim
BR — Breach
FE — Feed
BL — Blow
PO — Porpoising
CB — Courtship behavior
PB — Play behavior

BEHAVIORAL REACTIONS INTENSITY: SE — Sedate; MO — Moderate; VI — Vigorous.

DATA	TIME, HOUR	TIME, MINUTE	LATITUDE DEGREES	LATITUDE MINUTES	LATITUDE HUNDRETH MINUTES	LONGITUDE DEGREES	LONGITUDE MINUTES	LONGITUDE HUNDRETH MINUTES	VESSEL HEADING	SEA STATE, BEAUFORT SCALE	VISIBILITY, MILES	LIGHT OR DARK	GLARE AMOUNT	GLARE POSITION	SPECIES	NUMBER OF INDIVIDUALS MM	MOVEMENT MM I.R.T. VESSEL	BEHAVIOUR	MOVEMENT PACE	DIRECTION FROM	DIRECTION TO	DIRECTION OF REVEALING	DISTANCE TO SHIP, MILES
			9644077			545969			W	0	6	L	NO	–	UTW	12	SP	PO	MO	07	01	10	0.5
12.05.2013	15	26																					
17.05.2013	15	23	03	15	326	80	29	290	ANC	1	8	L	LI	8	SSL	1	SP	SW	SE	12	6	10	0.003
18.05.2013	10	58	03	15	326	80	29	290	ANC	1	8	L	SE	3	SSL	1	PE	SW	SE	4	11	3	0.008
19.05.2013	06	32	03	15	326	80	29	290	ANC	0.5	7	L	–	–	DST	40	SP	PO	MO	6	12	6	0.01
19.05.2013	08	34	03	15	326	80	29	290	ANC	1	7	L	SE	4	SSL	1	SA	SW	SE	5	7	5	0.005
19.05.2013	12	40	03	15	326	80	29	290	ANC	1	8	L	SE	2	KIW	3	SP	BR/ FI	SE	4	12	4	0.4
19.05.2013	13	20	03	15	326	80	29	290	ANC	1	8	L	SE	2	KIW	5	MI	PO	SE	5	10	5	0.6
20.05.2013	05	45	03	16	036	80	29	070	ANC	0.5	05	D/L	–	–	UTW	4	SA	–	–	–	–	6	0.3
22.05.2013	13	42	03	13	479	80	29	172	ANC	1	6	L	SE	12	DBO	30	SP	PO	MO	8	12	8	0.5
22.05.2013	14	06	03	13	480	80	29	130	NW	1	5	L	SE	12	DBO	20	SP	PO	MO	7	12	7	0.4
23.05.2013	06	21	03	13	479	80	29	172	ANC	0.5	3	L	–	–	SSL	1	SA	SW	MO	7	5	7	0.2
23.05.2013	18	30	03	16	10	80	29	45	?	0.5	1.2	D/L	–	–	HUW	1	SA	BL/ SI	SE	E	W	E	0.6
24.05.2013	06	05	03	13	479	80	29	172	ANC	0.5	2	D/L	–	–	SSL	1	SP	SW	MO	6	1	7	0.01
24.05.2013	17	02	03	13	479	80	29	172	ANC	0.5	6	L	SE	11	SSL	1	SA	SW	MO	8	3	8	0.2
25.05.2013	12	43	03	13	479	80	29	172	ANC	0.5	7	L	LI	1	US	1	SA	SW	SE	6	10	6	0.1
25.05.2013	13	52	03	13	479	80	29	172	ANC	0.5	7	L	MO	12	US	1	PE	SW	MO	2	11	2	0.7
26.05.2013	17	15	–	–	–	–	–	–	SW	0.5	6	L	SE	–	KIW	1	SA	SW	MO	–	–	–	–
27.05.2013	11	02	03	13	479	80	29	172	ANC	0–0.5	8	L	MO	2	US	2	SA	CB/ PB	SE	7	6	7	0.3
28.05.2013	16	40	03	13	479	80	29	172	ANC	0.5	7	L	SE	4	SSL	1	SA	DI	MO	5	4	5	0.2
29.05.2013	18	20	03	13	479	80	29	172	ANC	0.5	1.5	L/D	–	–	SSL	2	SA	SW	MO	6	12	5	0.03
31.05.2013	09	54	03	13	479	80	29	172	ANC	0.5	4	L	–	–	DBO	50	SP	PO	MO	6	12	5	0.3