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RESEARCH ON COASTAL BOTTLENOSE DOLPHINS (*TURSIOPS TRUNCATUS*), INCLUDING A PHOTO-IDENTIFICATION CATALOG, FOLLOWING THE 2015 REFUGIO BEACH OIL SPILL IN SANTA BARBARA COUNTY, CALIFORNIA

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U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
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U.S. DEPARTMENT OF COMMERCE
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Background

The distribution of coastal bottlenose dolphins (*Tursiops truncatus*) off California extends from at least Ensenada in northern Baja California to San Francisco Bay, California (Szczepaniak et al. 2013, Carretta et al. 2015). Despite their broad coastal distribution, these dolphins typically occur within 1-2 km of shore, and are most commonly found just outside of the breaking surf in waters approximately 10 m deep (Carretta et al. 1998, Hanson and Defran, 1993, Ward 1999, Hwang et al. 2014). Thus, the distribution of coastal bottlenose dolphins off California is generally confined to a narrow "coastal corridor" extending at least 900 km north-to-south, but for the most part is limited to about 1 km from shore.

This population of Pacific coast bottlenose dolphins exhibits extensive coastal movements and demonstrates little site fidelity to any one area (Defran et al. 1999, Bearzi 2005, Hwang et al. 2014). Although much of the photo-identification research on this stock has been conducted off San Diego (e.g. Defran and Weller 1999, Lang 2002, Dudzik et al. 2006, Defran et al. 2015), studies completed off Orange County (Defran et al. 1999), Santa Monica (Bearzi 2005), Santa Barbara (Marsh 2000, Lang 2002) and Monterey Bay (Feinholz 1996), California and in Ensenada, Baja California, Mexico (Defran et al. 1999, Guzòn-Zatarain 2002) have provided photo-identification data to show that most of the dolphins identified in those areas have also, at some point, been sighted off San Diego (Defran et al. 1999, Weller and Defran 2016).

On 19 May 2015, NOAA was notified of an oil spill that occurred near Refugio Beach in Santa Barbara County, California (34°27.74'N, 120°5.21'W)[1]. This report summarizes the analysis of photo-identification data collected on coastal bottlenose dolphins during boat-based and shore-based surveys conducted in the coastal waters of Santa Barbara following the Refugio Beach Oil Spill (RBOS).

Introduction

Bottlenose dolphins are one of the most commonly encountered cetaceans in the nearshore waters off California and Baja California, Mexico. Two distinct bottlenose dolphin ecotypes occur in these waters: a coastal form that is typically found within 1–2 km of shore (Carretta et al. 1998, Defran and Weller 1999) and an offshore form that is distributed in deeper waters, typically greater than a few kilometers from shore (Defran and Weller 1999, Bearzi et al. 2009). Differentiation of these two ecotypes, which are managed as separate stocks by the National Marine Fisheries Service (Carretta et al. 2015), is supported by morphological (Walker 1981, Perrin et al. 2011), photographic (Shane 1994) and genetic data (Lowther-Thieleking et al. 2014).

Most dolphins in the coastal population (i.e., about 65%) can be individually identified by distinctive patterns of nicks and notches primarily on the trailing edges of their dorsal fins (Fig. 1) but also occasionally on the tip and leading edge of the fin. These notches result mainly from

[1] http://response.restoration.noaa.gov/oil-and-chemical-spills/significant-incidents/refugio-state-beach-oil-spill-near-santa-barbara-calif

the teeth of conspecifics during social-sexual or aggressive interactions. Notch patterns remain highly stable over time and serve as a reliable means of long-term individual identification.

Both shore- and boat-based photo-identification surveys were completed in the weeks following the RBOS (Table 1). This report presents summaries of the boat- and shore-based photo-identification methods and results. The goal of these analyses was to create a photographic archive of dolphins known to have been in proximity to the RBOS area, to examine some aspects of their occurrence and residency and to estimate the proportion of the total population present during the study period. Because of their potential exposure to oil from the RBOS, documenting individual dolphins sighted in the area and estimating the time they may have been in the vicinity was viewed as an important first step in the assessment of possible long-term effects that oil exposure may have on their survival.

Methods

Boat-Based Photo-identification Surveys

Photo-identification surveys involved slow travel in a small boat moving parallel to the shoreline and under conditions adequate for sighting and photographing dolphins (see Defran and Weller 1999 for a detailed description of methodology). Spatial coverage of the eight boat-based surveys conducted was variable (Figs. 2-9). During these surveys all members of the research team, including the boat driver, data recorder and photographers, maintained visual search effort until a dolphin sighting was made. Upon initial sighting of a dolphin group, the survey vessel slowed and maneuvered to a vantage point approximately 50 m from the dolphins. From this position, group location (as determined by GPS), sighting time, behavior, and number of dolphins and number of calves were recorded. The criteria for being classified as a calf (less than 6 months old) included any or all of the following indicators: fetal folds, floppy dorsal fin, head-up surfacing behavior and close and prolonged proximity to an apparently full-sized adult.

Dorsal fin images were collected using Canon digital SLR cameras equipped with 100-400 mm zoom lenses. For sighting #1605 on 26 May, only one photographer took dorsal fin images; during all other sightings multiple photographers took dorsal fin images. In all cases, attempts were made to photograph every dolphin in a group. For each sighting where multiple cameras were used, a primary (i.e., most experienced) photographer/camera was identified and all of the images shot by this individual were analyzed using the sorting and matching protocols described by Mazzoil et al. (2004). For each sighting on each survey day, the best image (i.e., "type specimen") for each individual was determined based on image quality.

Shore-Based Photo-identification Surveys

Shore-based photo-identification surveys involved visual search for dolphins in the study area from one or more of four fixed observation stations (Fig. 10). These four observation locations were positioned along a 16.2 km stretch of shoreline from El Capitan State Park (hereafter abbreviated as "El Cap") to Coal Oil Point. The station "El Cap West" was at an elevation of approximately 30 m; the remaining three locations were on the shoreline at or close to sea level. Observations were conducted most frequently from the "El Cap West" and

"El Cap East" stations and less often at the "Bacara Resort" and "Coal Oil Point" stations (Fig. 10). Images of individual dorsal fins were collected using Canon digital SLR cameras equipped with 100-400 mm, 600 mm and 800 mm lenses. Shore-based observational and photo-identification data were collected in the following ways: (1) observers collected data simultaneously at both the "El Cap West" and "El Cap East" stations, (2) observers remained at a single station or (3) observers moved between stations, depending on the movements of the dolphin group being observed. In all cases, attempts were made to photograph every dolphin in a group. Dorsal fin images were obtained from each of the four shore station locations (Fig. 10) and with all camera/lens configurations (Table 2). The specific cameras, lenses and observation stations allowed successful photography of coastal bottlenose dolphins in only the very near-shore zone, approximately .25 km to .5 km from the beach. All digital images obtained from each sighting were analyzed using the sorting and matching protocols described by Mazzoil et al. (2004). For each sighting on each survey day, the best image (i.e., "type specimen") for each individual was determined based on image quality.

Results and Discussion

Boat-Based Results

Dolphin dorsal fin photographs were collected on seven of the eight boat-based survey days, including: 26 and 28 May and 3, 4, 5, 6, 7 June (Table 1). No dolphins were sighted on the 2 June survey. Fifty-five naturally marked individuals (i.e., those with at least two or more unique dorsal fin nicks and/or notches) were identified during the seven survey days on which coastal bottlenose dolphins were photographed (see Table 1 area marked in blue). Table 3 presents a matrix of the number of individuals identified during each sighting for each day. On some occasions the same individual was photographed (identified) on more than one sighting within a day (e.g., see Table 3: dolphin no. 1101 was photographed on 26 May during sightings #1605 and #1815).

Photo-identification data were further used to determine a measure of "residency" for dolphins identified during boat-based surveys. Residency for boat-based survey sightings was characterized in three ways (Table 4), including: (1) *No Residency* (Type NR) - when an individual was sighted on only a single survey day, (2) *Short-Term Residency* (Type SR) - when an individual was sighted on two adjacent survey days, and (3) *Transient Residency* (Type TR) - when sightings of an individual were documented on non-adjacent days (e.g., sightings of dolphin no. 1103 on 26 May and 6 June). The implicit assumption for "Short-Term Residency" is that individuals remained in the area or nearby between sightings whereas for "Transient Residency" they may not have.

For these boat-based sightings it was not known whether a given individual was present but not encountered or identified in the Santa Barbara area on days when it was not sighted. A summary of the number of dolphins identified during each sighting as compared to the best estimate of group size made by the research team while in the field is provided in Table 5. Of the 20 sightings, 50% (n=10) had field estimates that were higher than the number of individual dolphins photo-identified. For instance, sighting #1510 on 28 May photo-identified 3 dolphins but the field estimate of group size was 5 (Table 5). In this case, one of the following

circumstances may explain the discrepancy: (1) the field estimate was incorrect, (2) five dolphins were photographed but only three had distinctive nicks and notches, or (3) all five dolphins were distinctively marked but two of them were either not photographed or had images of unacceptable quality. In other cases, the number of dolphins identified exceeded the associated field estimate. While the source of a discrepancy between a field estimate of group size and the number of individuals photo-identified in that group is unknown, the several explanations mentioned above could account for it.

Acknowledging the caveats outlined above, of the 55 dolphins photo-identified during boat-based surveys, 35 (64%) were sighted on one day, 17 (31%) on two days, 1 (2%) on three days and 2 (2%) on four days (Table 4, Fig. 11B). In sum, 52 (95%) of the 55 dolphins identified were sighted on ≤ 2 of the 8 survey days.

The relatively low degree of residency observed for identifiable dolphins during this study was not unexpected. Coastal dolphins off California have commonly been described as "nomadic", showing little fidelity to any given area (Defran and Weller 1999). These dolphins are known to be highly mobile and travel large distances in short periods of time. For example, previous studies have documented individual dolphins traveling 93 km in two days resulting in a minimum travel speed of 47 km/d (Defran et al. 1999). The apparent absence of dolphins in the present study area on 2 June, but subsequent occurrence on 3 June, appears to reinforce earlier findings of a generally ephemeral use of habitat by the coastal population. Uncertainty exists regarding residency patterns of dolphins in this coastal population because of their pronounced mobility. For example, a dolphin seen on only one day in the study area may have transited through the area rapidly or lingered in the area for the entire day. In other cases, when dolphins were sighted in the study area on more than one day, it may be that these individuals were: (1) in the area for the duration of time between sightings, or (2) traveled in and out of the area, in some cases possibly multiple times.

Research on coastal dolphin group composition on a day-to-day basis off San Diego reported that group composition sometimes remained constant from one day to another but most often was characterized by some dolphins present on the first day being joined by other dolphins not present the previous day to form a group of considerably different membership (Weller 1991). This same pattern can be seen during the boat-based survey data described herein (Table 3 and Table 4).

The initial behavior state exhibited by a dolphin group when first encountered was recorded during boat-based surveys (Table 5). The behavior states observed included: (1) *Travel* - uniform directional movement of focal group individuals with a rhythmic pattern of surfacing followed by shallow submergence, (2) *Feed* - variable directional movements of focal group individuals with frequent steep and rapid diving, often exposing the fluke or tail stock, and (3) *Rest* - pronounced and diminished lack of activity that included floating and very slow movement (Hanson and Defran 1993). The most frequent behavior observed was travel (60%, n=12 groups), followed by feed (30%, n=6 groups) and rest (5%, n=1 group). A similar pattern of behavior was true in an earlier study of coastal bottlenose dolphins off San Diego (Hanson and

Defran 1993) where travel (63.2%) was most frequently observed, followed by feed (31.6%) and rest (5.3%).

The presence or absence of calves in a group was noted during five of the boat-based surveys, including those conducted on 3, 4, 5, 6, and 7 June. A single calf was present in the following two sightings: #1547 and #1404. Two calves were present in the following two sightings: #1256 and #1443. These calf-occurrence data confirm similar observations made in the Santa Barbara area by Lang (2002) during 61 surveys carried out between April 1998 and August 1999.

Shore-Based Results

Twenty-four distinctly marked individuals were photographed during shore-based surveys. These 24 individuals were collected on six of the eight shore-based survey days, including: 24, 25, 27 and 31 May and 1 and 6 June. No dorsal fin images of adequate quality were obtained on 4 and 7 June (see Table 1 area marked in gold). In some cases, an individual dolphin was photographed during more than one sighting on a survey day. However, no individual was counted as occurring more than once on that day, a procedure followed for boat-based photo-identification data as well.

Of the 24 dolphins photo-identified during shore-based surveys, 19 (79%) were photographed on only a single survey day (Fig. 11A). The remaining 5 dolphins (21%) were photographed on two days. The number of days between sightings of these 5 dolphins was: 7, 7, 7, 1 and 13. Similar sighting frequency patterns were reported for the larger sample of 55 dolphins identified during the boat-based surveys (Fig. 11B).

Combined Results

Thirteen individuals were sighted during both shore-based and boat-based surveys (Table 6). One of these individuals (dolphin no. 3314) was sighted on a total of six days, including two days during shore-based effort and four days during boat-based effort (Table 6). When shore- and boat-based sightings were combined, 56% (n=37) of all individuals were sighted on one day, 32% (n=21) were sighted on two days and 12% (n=8) on three or more days (Fig. 11C).

To estimate the total (marked and unmarked) number of individuals sighted at least once during the study, an estimate of the number of unmarked dolphins needed to be determined. The number of marked dolphins photo-identified during the present study was 79, inclusive of the 24 dolphins photographed during shore-based surveys and 55 identified during boat-based surveys. This total of 79 dolphins included the aforementioned 13 individuals that appeared in both the shore- and boat-base data sets resulting in an adjusted total of 66 marked dolphins that were photo-identified during this study. Defran and Weller (1999) reported that 65% of California coastal dolphins are distinctly marked. Given that the number of marked dolphins during the present study was 66 (or 65%), the number of unmarked dolphins (35%) was calculated to be 36. This combined estimate of marked and unmarked dolphins (n=102) is about 17% of the most recent estimate for coastal bottlenose dolphins (n_{est} = 600) (Weller et al. 2016).

A comparison was conducted of the 66 dolphins photo-identified from shore- and boat-based surveys during the RBOS study to a photo-identification catalog of 492 individuals photographed from small-boats off San Diego between 2009-2014 (Weller and Defran 2016). This comparison was designed to: (1) examine previous movements of dolphins between Santa Barbara (i.e., the broader RBOS study area) and San Diego and (2) provide past sighting histories for those dolphins identified during the RBOS that had also been sighted in San Diego between 2009-2014. The relevant meta-data, including sighting information, survey dates, encounter locations, type specimen image file names and dolphin identification numbers for the RBOS-NMFS catalog matches are provided in Appendix 1.

Twenty-three dolphins in the RBOS photo-identification catalog were matched to dolphins in the 2009-2014 NMFS photo-identification catalog from San Diego (Appendix 1). The sighting frequencies of these 23 dolphins in the San Diego study area were as follows: 14 were sighted once or twice, 6 were sighted three or four times and 3 were sighted five to eight times (Fig. 12).

Concluding Summary

Shore- and boat-based photo-identification surveys of coastal bottlenose dolphins following the 2015 RBOS were highly productive. Dolphins were sighted and photographed on 6 of 8 shore-based survey days and on 7 of 8 small-boat survey days in the general vicinity of the RBOS area. A total of 66 dolphins were photo-identified during shore- and boat-based surveys (combined); and when the proportion of unmarked dolphins was taken into account, it was estimated that 102 dolphins were in the general vicinity of the RBOS at some point during the study. This combined total of 102 marked and unmarked individuals is approximately 17% of the estimated population size for coastal bottlenose dolphins (Weller et al. 2016). Sighting frequencies of the 66 dolphins in the RBOS photo-identification catalog (Table 6, Appendix 1) indicate some evidence for short-term residency to the area by some dolphins.

As part of this work, we developed a digital photo-identification catalog of the 66 dolphins identified during the RBOS study. This catalog was created as: (1) a resource for stranding and rescue organizations to determine if a given specimen is an individual known to have been in the spill related area, and (2) a resource for scientists that study bottlenose dolphins off the California and Baja coast to determine if a given sighting is of an individual known to have been in the spill related area. An example of a sighting page from this PDF catalog is given in Fig. 13 and the photo-identification catalog is provided in Appendix 2.

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Table 1. Shore-based (gold) and boat-based (blue) RBOS survey days during 2015. Cells with a black dot indicate a survey date on which a useable dorsal fin image was acquired. Cells with an open circle indicate: (1) a survey date on which a useable dorsal fin image was not acquired or (2) a day on which no dolphins were encountered (2-Jun-15).

	Survey Date														
	24-May-15	25-May-15	26-May-15	27-May-15	28-May-15	29-May-15	30-May-15	31-May-15	1-Jun-15	2-Jun-15	3-Jun-15	4-Jun-15	5-Jun-15	6-Jun-15	7-Jun-15
Shore-based	●	●		●				●	●			○		●	○
Boat-based			●		●					○	●	●	●	●	●

Table 2. RBOS shore-based photo-identification survey image inventory.

Date	Sighting Number	Number Images
24-May-15	1837	250
25-May-15	1745	220
27-May-15	1309	795
27-May-15	1430	96
31-May-15	1525	1,517
1-Jun-15	1028	591
1-Jun-15	1532	390
1-Jun-15	1630	251
1-Jun-15	1732	84
4-Jun-14	1423	6
6-Jun-15	940	69
6-Jun-15	1050	126
7-Jun-15	1434	9
		4,404

Table 3. Matrix of sighting history data for 55 dolphins photo-identified during boat-based surveys. Individual sightings are denoted in dark green.

Date →	26-May-15	26-May-15	26-May-15	28-May-15	28-May-15	28-May-15	28-May-15	28-May-15	3-Jun-15	3-Jun-15	4-Jun-15	4-Jun-15	4-Jun-15	5-Jun-15	5-Jun-15	6-Jun-15	6-Jun-15	7-Jun-15	7-Jun-15	7-Jun-15
ID #↓\Sight # →	1605	1742	1815	1400	1510	1642	1727	1805	1508	1547	1233	1351	1431	1404	1457	1256	1504	1443	1520	1603
1101																				
1102																				
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4407																				
4408																				
4410																				
4411																				

Table 4. Boat-based photo-identification data: Matrix of all distinctly marked dolphins (n=55) and the survey days on which they were photo-identified. Some individuals were sighted on more than one survey day. Also listed are the number of survey days on which individuals were sighted (Xs Sighted), as well as the sighting types: NR = *No Residency*, SR = *Short-Term Residency* (adjacent days), TR = *Transient Residency* (non-adjacent days), *SR,TR* = *Short-Term* and *Transient Residency*.

ID↓\Date →	26-May-15	28-May-15	3-Jun-15	4-Jun-15	5-Jun-15	6-Jun-15	7-Jun-15	Xs Sighted	Sighting Type
1101	■							1	NR
1102		■						1	NR
1103		■				■		2	TR
1104		■						1	NR
1105			■	■	■		■	4	SR, TR
1106		■	■					2	TR
1107			■					1	NR
1108				■				1	NR
1109		■		■				2	TR
1110							■	1	NR
1111			■		■			2	TR
2201	■							1	NR
2202	■	■						2	TR
2203		■						1	NR
2204		■				■	■	3	TR, SR
2205		■						1	NR
2206		■						1	NR
2207		■						1	NR
2208			■		■			2	TR
2209		■		■				2	TR
2210						■		1	NR
2211	■					■		2	TR
2212	■					■		2	TR
2213						■	■	2	SR
3301	■	■						2	TR
3302		■						1	NR
3303		■						1	NR
3304		■						1	NR
3305		■						1	NR
3306		■						1	NR
3307		■						1	NR
3308		■						1	NR
3309			■					1	NR
3310		■	■					2	TR
3311			■					1	NR
3312			■					1	NR
3313			■					1	NR
3314			■	■	■		■	4	SR, TR
3315					■		■	2	TR
3316					■			1	NR
3317						■		1	NR
3318						■	■	2	SR
3319						■	■	2	SR
3320							■	1	NR
3321						■	■	2	SR
4401		■						1	NR
4402		■						1	NR
4403		■						1	NR
4404		■						1	NR
4405			■		■			2	TR
4406					■			1	NR
4407						■		1	NR
4408						■		1	NR
4410							■	1	NR
4411							■	1	NR

Table 5. Number of dolphins photographically identified, best estimate of group size and behavior state for all sightings during boat-based surveys. NBS = no behavior state recorded.

Date	Sighting Number	Number Identified	Best Field Estimate	Behavior State
May 26, 2015	1605	3	2	Feed
May 26, 2015	1742	5	3	Travel
May 26, 2015	1815	6	2	Travel
May 28, 2015	1400	6	6	Travel
May 28, 2015	1510	3	5	Feed
May 28, 2015	1642	12	19	Travel
May 28, 2015	1727	1	3	Feed
May 28, 2015	1805	2	4	Feed
June 3, 2015	1508	4	4	Travel
June 3, 2015	1547	8	6	Travel
June 4, 2015	1233	2	3	Travel
June 4, 2015	1351	1	3	Feed
June 4, 2015	1431	1	3	Rest
June 5, 2015	1404	7	9	NBS
June 5, 2015	1457	2	3	Travel
June 6, 2015	1256	12	12	Feed
June 6, 2015	1504	2	2	Travel
June 7, 2015	1443	8	8	Travel
June 7, 2015	1520	1	1	Travel
June 7, 2015	1603	2	4	Travel

Table 6. Sighting histories for 66 dolphins photo-identified during shore-based (gold) and boat-based (blue) surveys.

ID↓\Date →	24-May-15	25-May-15	26-May-15	27-May-15	28-May-15	31-May-15	1-Jun-15	3-Jun-15	4-Jun-15	5-Jun-15	6-Jun-15	7-Jun-15
1101												
1102												
1103												
1104												
1105												
1106												
1107												
1108												
1109												
1110												
1111												
1112												
1113												
1114												
2201												
2202												
2203												
2204												
2205												
2206												
2207												
2208												
2209												
2210												
2211												
2212												
2213												
2214												

Table 6. (Continued)

ID↓\Date →	24-May-15	25-May-15	26-May-15	27-May-15	28-May-15	31-May-15	1-Jun-15	3-Jun-15	4-Jun-15	5-Jun-15	6-Jun-15	7-Jun-15
3301												
3302												
3303												
3304												
3305												
3306												
3307												
3308												
3309												
3310												
3311												
3312												
3313												
3314												
3315												
3316												
3317												
3318												
3319												
3320												
3321												
3322												
3323												
3324												
3325												
4401												
4402												
4403												
4404												
4405												
4406												
4407												
4408												
4410												
4411												
4412												
4413												
4414												

Figure 1. Photo-identification image of a coastal bottlenose dolphin dorsal fin from off Southern California. The nicks and notches are used for individual identification. A barnacle (*Xenobalanus globicipitus*) is attached to the tip of the fin. Photo: D.W. Weller (NMFS permit #14097).

Figure 2. Small boat photo-identification survey, 26 May 2015. The location of sightings #1742 and #1815 were based on landmarks in photographs rather than recorded GPS values.

Figure 3. Small boat photo-identification survey, 28 May 2015.

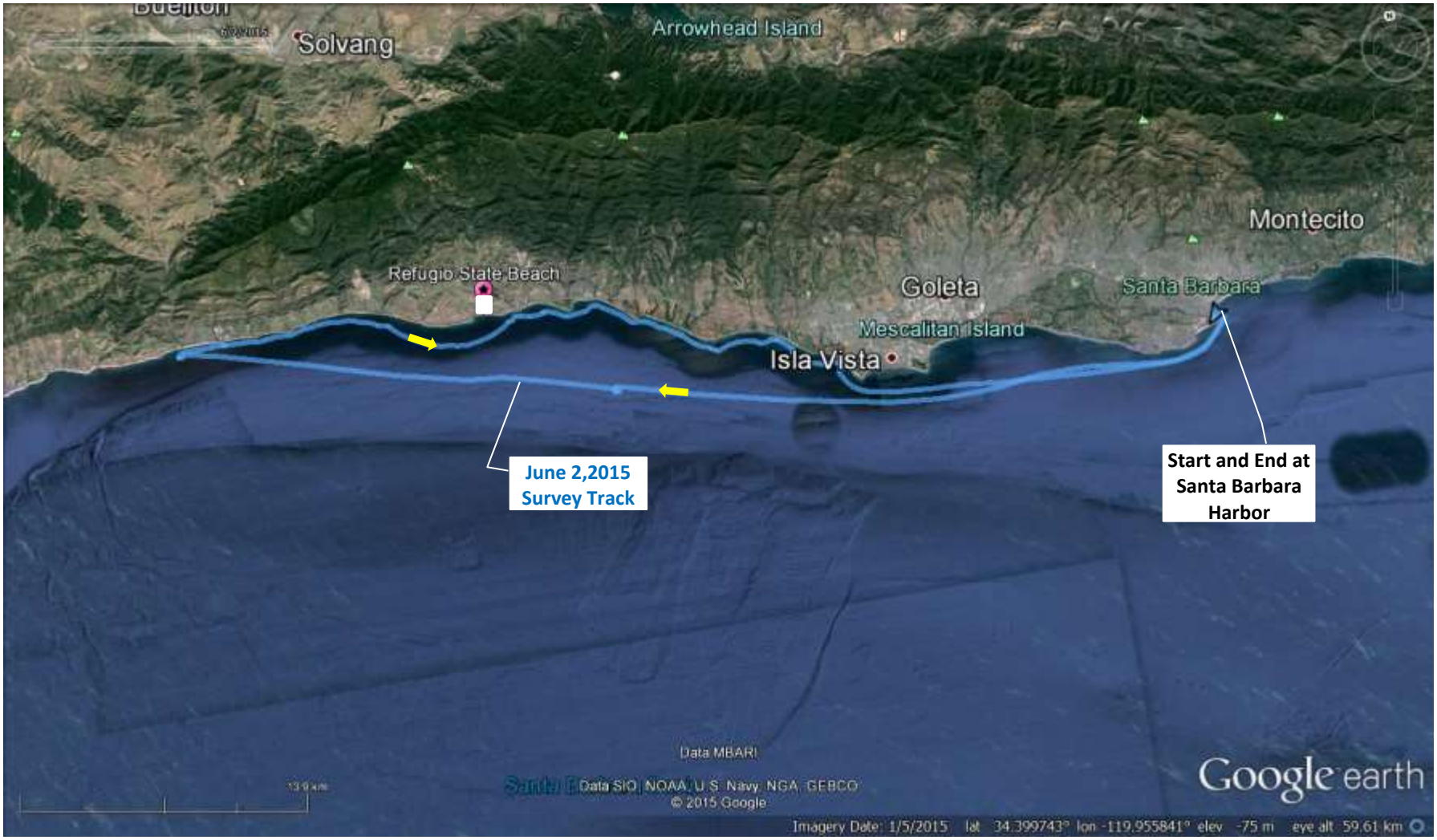

Figure 4. Small boat photo-identification survey, 2 June 2015. There were no coastal bottlenose dolphin sightings on this survey day.

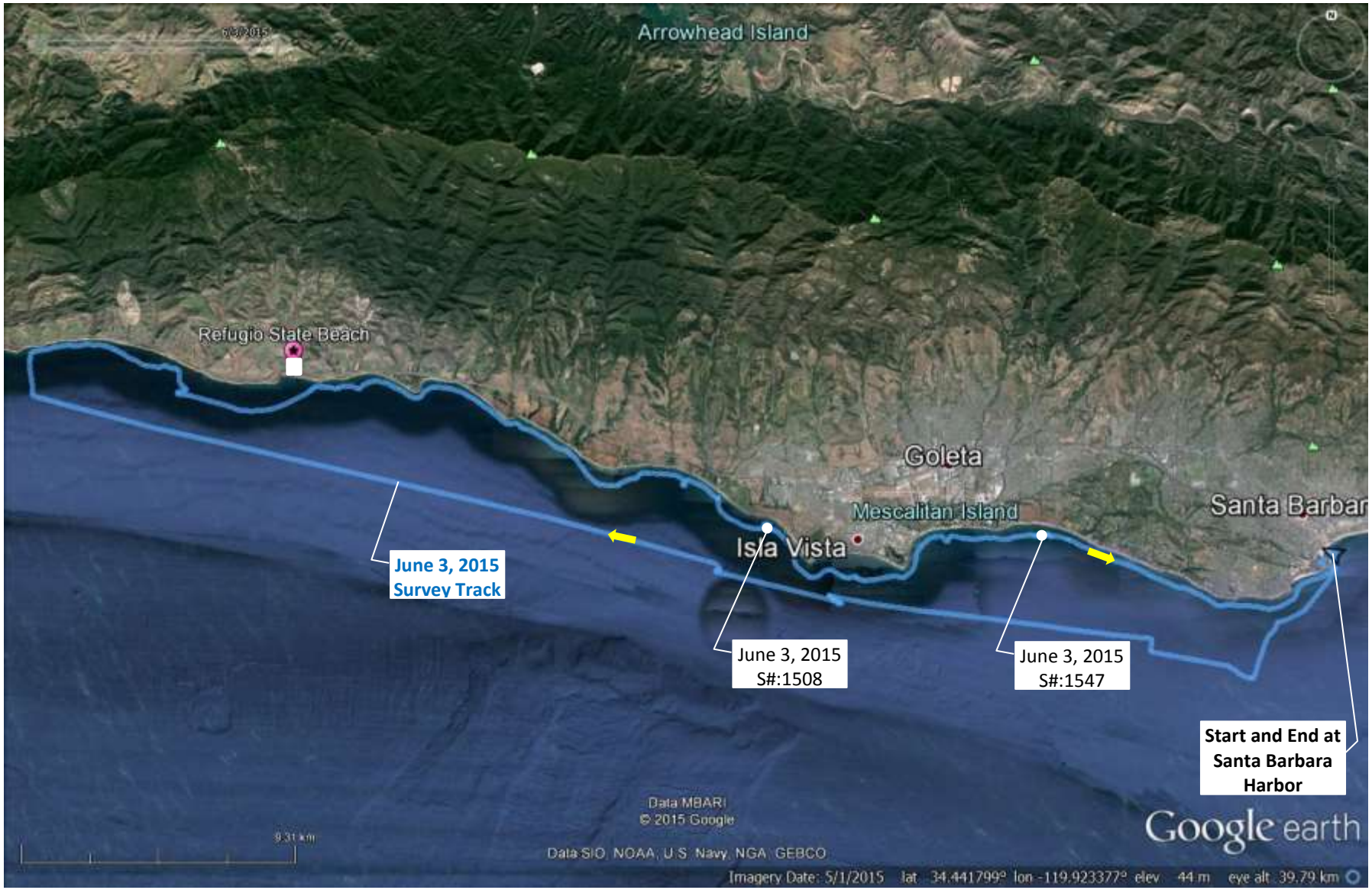

Figure 5. Small boat photo-identification survey, 3 June 2015.

Figure 6. Small boat photo-identification survey, 4 June 2015.

Figure 7. Small boat photo-identification survey, 5 June 2015.

Figure 8. Small boat photo-identification survey, 6 June 2015. Unlike other surveys, this survey began close to shore and returned offshore.

Figure 9. Small boat photo-identification survey, 7 June 2015.

Figure 10. Shore-based RBOS photo-identification survey stations.

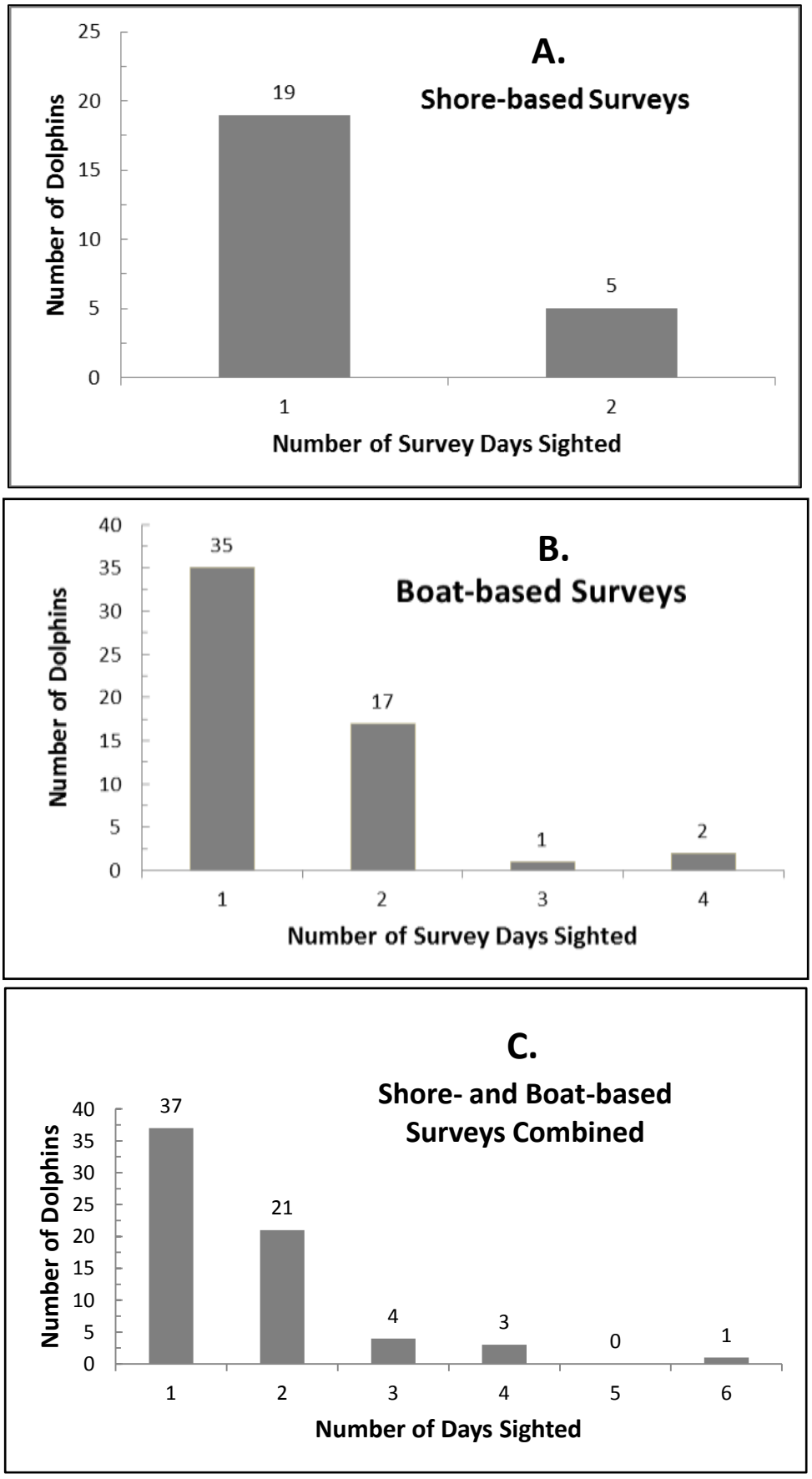

Figure 11. Sighting frequency for dolphins photographed during (A) shore-based surveys, (B) boat-based surveys and (C) combined surveys.

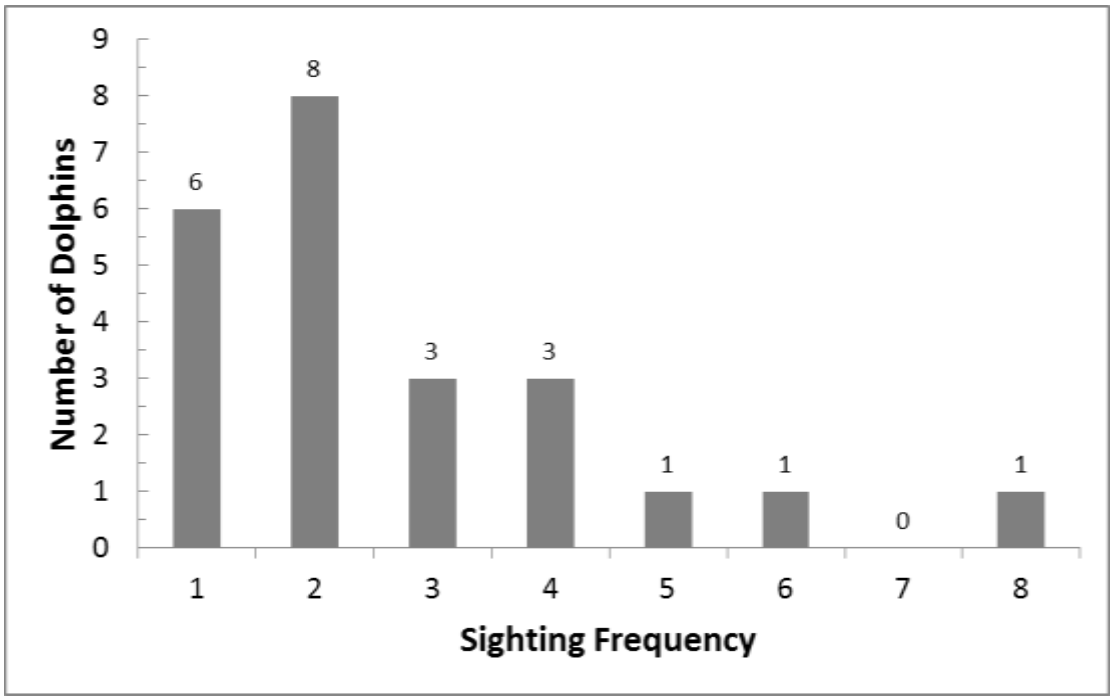

Figure 12. Sighting frequencies for 23 dolphins photographed in San Diego 2009-2014 and matched to individuals in the RBOS catalog.

RBOS ID	File Name	Date Taken
1101	1101_SB04_5606_20150526_1815_L	26_May_2015

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Figure 13. Example of a type specimen image from the RBOS digital photo-identification catalog (Appendix 2).

Appendix 1. Meta-data for the RBOS-NMFS 2009-2014 photo-identification catalog comparison.

RBOS Catalog ID	Sighting ID	Sighting Date	Sighting Number	Platform: Boat or Shore	Sighting Location: Latitude N	Sighting Location: Longitude W	Type Specimen Image File	Match to NMFS 2009-2014: Yes or No	NMFS 2009-2014: ID Match	NMFS 2009-2014 Match: Image File
1101	SB04_5606_20150526_1815_D	26-May-15	1815	boat	34.68233	-119.70617	1101_SB04_5606_20150526_1815_L	No		
1102	SB01_0643_20150527_1309_A	27-May-15	1309	shore	34.45810	-120.02992	1102_SB04_6556_20150528_1400_P	Yes	23081	23081_163_29Feb12_02_05
1102	SB04_6556_20150528_1400_A	28-May-15	1400	boat	34.41183	-119.80700	1102_SB04_6556_20150528_1400_P	Yes	23081	23081_163_29Feb12_02_05
1103	SB04_7240_20150528_1642_R	28-May-15	1642	boat	34.40300	-119.54817	1103_SB04_7240_20150528_1642_E	No		
1103	SB01_8618_20150531_1525_C	31-May-15	1525	shore	34.46130	-120.02992	1103_SB04_7240_20150528_1642_E	No		
1103	SB08_6111_20150606_1256_C	6-Jun-15	1256	boat	34.41295	-119.88620	1103_SB04_7240_20150528_1642_E	No		
1104	SB04_7630_20150528_1805_W	28-May-15	1805	boat	34.32817	-119.40533	1104_SB04_7630_20150528_1805_HH	No		
1105	SB07_1604_20150603_1547_F	3-Jun-15	1547	boat	34.41453	-119.79665	1105_SB07_1604_20150603_1547_U	No		
1105	SB07_1733_20150604_1431_C	4-Jun-15	1431	boat	34.39863	-119.73988	1105_SB07_1604_20150603_1547_U	No		
1105	SB07_1894_20150605_1404_B	5-Jun-15	1404	boat	34.46960	-120.22445	1105_SB07_1604_20150603_1547_U	No		
1105	SB08_6528_20150607_1603_J	7-Jun-15	1603	boat	34.40273	-119.86791	1105_SB07_1604_20150603_1547_U	No		
1106	SB04_6756_20150528_1400_F	28-May-15	1400	boat	34.41183	-119.80700	1106_SB07_1622_20150603_1547_A	No		
1106	SB07_1622_20150603_1547_I	3-Jun-15	1547	boat	34.41453	-119.79665	1106_SB07_1622_20150603_1547_A	No		
1107	SB01_8823_20150601_1532_B	1-Jun-15	1532	shore	34.45810	-120.02992	1107_SB07_1626_20150603_1547_O	No		
1107	SB07_1626_20150603_1547_E	3-Jun-15	1547	boat	34.41453	-119.79665	1107_SB07_1626_20150603_1547_O	No		
1108	SB01_8158_20150531_1525_B	31-May-15	1525	shore	34.46130	-120.02992	1108_SB07_1662_20150604_1233_NN	No		
1108	SB07_1662_20150604_1233_A	4-Jun-15	1233	boat	34.41504	-119.88813	1108_SB07_1662_20150604_1233_NN	No		
1109	SB04_7565_20150528_1727_V	28-May-15	1727	boat	34.37317	-119.46667	1109_SB07_1688_20150604_1233_G	No		
1109	SB01_8558a_20150531_1525_D	31-May-15	1525	shore	34.46130	-120.02992	1109_SB07_1688_20150604_1233_G	No		
1109	SB07_1688_20150604_1233_D	4-Jun-15	1233	boat	34.41504	-119.88813	1109_SB07_1688_20150604_1233_G	No		
1110	SB08_6458_20150607_1443_G	7-Jun-15	1443	boat	34.46147	-120.10345	1110_SB08_6458_20150607_1443_BBB	No		
1111	SB07_1545a_20150603_1508_A	3-Jun-15	1508	boat	34.41768	-119.89425	1111_SB07_1851_20150605_1404_JJ	No		
1111	SB07_1851_20150605_1404_D	5-Jun-15	1404	boat	34.46960	-120.22445	1111_SB07_1851_20150605_1404_JJ	No		
1112	SB01_0304_20150525_1745_C	25-May-15	1745	shore	34.46130	-120.02992	1112_SB01_0304_20150525_1745_B	No		
1112	SB01_8870_20150601_1532_E	1-Jun-15	1532	shore	34.45810	-120.02992	1112_SB01_0304_20150525_1745_B	No		
1113	SB01_0327_20150525_1745_B	25-May-15	1745	shore	34.46130	-120.02992	1113_SB01_0327_20150525_1745_E	Yes	11329	11329_351_20Jan11_02_10
1113	SB03_4472_20150601_1028_C	1-Jun-15	1028	shore	34.43138	-119.91676	1113_SB01_0327_20150525_1745_E	No		
1114	SB01_0348_20150525_1745_A	25-May-15	1745	shore	34.46130	-120.02992	1114_SB03_4454_20150601_1028_F	Yes	12068	12068_496_22Feb11_02_02
1114	SB03_4454_20150601_1028_A	1-Jun-15	1028	shore	34.43138	-119.91676	1114_SB03_4454_20150601_1028_F	No		
2201	SB04_5508_20150526_1815_B	26-May-15	1815	boat	34.68233	-119.70617	2201_SB04_5508_20150526_1815_S	Yes	23030	23030_098_20Jan11_02_10
2202	SB04_5182_20150526_1742_E	26-May-15	1742	boat	34.65867	-119.21017	2202_SB04_6622_20150528_1400_EE	No		
2202	SB04_6622_20150528_1400_C	28-May-15	1400	boat	34.41183	-119.80700	2202_SB04_6622_20150528_1400_EE	No		
2203	SB04_6952_20150528_1510_G	28-May-15	1510	boat	34.41550	-119.66267	2203_SB04_6952_20150528_1510_Q	No		
2204	SB04_6994_20150528_1642_J	28-May-15	1642	boat	34.40300	-119.54817	2204_SB04_6994_20150528_1642_DDD	No		
2204	SB03_3934b_20150531_1525_A	31-May-15	1525	shore	34.46130	-120.02992	2204_SB04_6994_20150528_1642_DDD	No		
2204	SB08_6090_20150606_1256_D	6-Jun-15	1256	boat	34.41295	-119.88620	2204_SB04_6994_20150528_1642_DDD	No		
2204	SB08_6438_20150607_1443_C	7-Jun-15	1443	boat	34.46147	-120.10345	2204_SB04_6994_20150528_1642_DDD	No		
2205	SB04_7106a_20150528_1642_O	28-May-15	1642	boat	34.40300	-119.54817	2205_SB04_7106a_20150528_1642_FF	Yes	23024	23024_064_28Mar04_02_01
2206	SB04_7118_20150528_1642_Q	28-May-15	1642	boat	34.40300	-119.54817	2206_SB04_7118_20150528_1642_Z	Yes	11991	11991_274_21Oct10_02_05
2207	SB04_7408_20150528_1642_U	28-May-15	1642	boat	34.40300	-119.54817	2207_SB04_7408_20150528_1642_R	No		
2207	SB03_4778_20150601_1028_D	1-Jun-15	1028	shore	34.43138	-119.91676	2207_SB04_7408_20150528_1642_R	No		
2208	SB07_1609_20150603_1547_G	3-Jun-15	1547	boat	34.41453	-119.79665	2208_SB07_1609_20150603_1547_SS	No		
2208	SB07_1904_20150605_1404_F	5-Jun-15	1404	boat	34.46960	-120.22445	2208_SB07_1609_20150603_1547_SS	No		
2209	SB04_6997_20150528_1642_K	28-May-15	1642	boat	34.40300	-119.54817	2209_SB07_1711_20150604_1351_B	No		
2209	SB07_1711_20150604_1351_B	4-Jun-15	1351	boat	34.40693	-119.76619	2209_SB07_1711_20150604_1351_B	No		
2210	SB08_6149_20150606_1256_N	6-Jun-15	1256	boat	34.41295	-119.88620	2210_SB08_6149_20150606_1256_ZZ	No		
2211	SB04_5148_20150526_1742_C	26-May-15	1742	boat	34.65867	-119.21017	2211_SB08_6210_20150606_1256_C	Yes	34148	34148_476_19Apr11_02_09
2211	SB08_6210_20150606_1256_M	6-Jun-15	1256	boat	34.41295	-119.88620	2211_SB08_6210_20150606_1256_C	Yes	34148	34148_476_19Apr11_02_09
2212	SB04_5295_20150526_1815_F	26-May-15	1815	boat	34.68233	-119.70617	2212_SB08_6268_20150606_1504_D	Yes	45036	45036_206_14May10_02_02
2212	SB08_6268_20150606_1504_B	6-Jun-15	1504	boat	34.45884	-120.05815	2212_SB08_6268_20150606_1504_D	Yes	45036	45036_206_14May10_02_02
2213	SB03_4358_20150531_1525_E	31-May-15	1525	shore	34.46130	-120.02992	2213_SB08_6270_20150606_1504_LL	No		
2213	SB01_8832_20150601_1532_C	1-Jun-15	1532	shore	34.45810	-120.02992	2213_SB08_6270_20150606_1504_LL	No		
2213	SB08_6270_20150606_1504_A	6-Jun-15	1504	boat	34.45884	-120.05815	2213_SB08_6270_20150606_1504_LL	No		
2213	SB08_6514_20150607_1520_I	7-Jun-15	1520	boat	34.45867	-120.08098	2213_SB08_6270_20150606_1504_LL	No		
2214	SB04_4991_20150524_1837_C	24-May-15	1837	shore	34.45810	-120.02992	2214_SB04_4991_20150524_1837_S	No		

Appendix 1. (Continued)

RBOS Catalog ID	Sighting ID	Sighting Date	Sighting Number	Platform: Boat or Shore	Sighting Location: Latitude N	Sighting Location: Longitude W	Type Specimen Image File	Match to NMFS 2009-2014: Yes or No	NMFS 2009-2014: ID Match	NMFS 2009-2014 Match: Image File
3301	SB04_5658_20150526_1815_A	26-May-15	1815	boat	34.68233	-119.70617	3301_SB04_5658_20150526_1815_V	No		
3301	SB04_6710_20150528_1400_D	28-May-15	1400	boat	34.41183	-119.80700	3301_SB04_5658_20150526_1815_V	No		
3302	SB03_2311_20150527_1309_C	27-May-15	1309	shore	34.45810	-120.02992	3302_SB04_6741_20150528_1400_T	No		
3302	SB04_6741_20150528_1400_E	28-May-15	1400	boat	34.41183	-119.80700	3302_SB04_6741_20150528_1400_T	Yes	34219	34219_200_31Jan12_02_10
3303	SB04_6985_20150528_1510_I	28-May-15	1510	boat	34.41550	-119.66267	3303_SB04_6985_20150528_1510_N	Yes	34179	34179_157_31Jan12_02_13
3304	SB04_7043_20150528_1642_M	28-May-15	1642	boat	34.40300	-119.54817	3304_SB04_7043_20150528_1642_CC	Yes	34175	34175_185_31Jan12_02_04
3305	SB04_7091_20150528_1642_N	28-May-15	1642	boat	34.40300	-119.54817	3305_SB04_7091_20150528_1642_AA	Yes	12039	12039_415_22Feb11_02_01
3306	SB04_7113_20150528_1642_P	28-May-15	1642	boat	34.40300	-119.54817	3306_SB04_7113_20150528_1642_GG	No		
3307	SB04_7401_20150528_1642_T	28-May-15	1642	boat	34.40300	-119.54817	3307_SB04_7401_20150528_1642_UU	No		
3308	SB04_7632_20150528_1805_X	28-May-15	1805	boat	34.32817	-119.40533	3308_SB04_7632_20150528_1805_I	No		
3309	SB07_1553_20150603_1508_C	3-Jun-15	1508	boat	34.41768	-119.89425	3309_SB07_1553_20150603_1508_EEE	No		
3310	SB04_7380_20150528_1642_S	28-May-15	1642	boat	34.40300	-119.54817	3310_SB07_1557_20150603_1508_F	No		
3310	SB07_1557_20150603_1508_B	3-Jun-15	1508	boat	34.41768	-119.89425	3310_SB07_1557_20150603_1508_F	No		
3311	SB07_1613_20150603_1547_H	3-Jun-15	1547	boat	34.41453	-119.79665	3311_SB07_1613_20150603_1547_QQ	Yes	34105	34105_305_11Nov10_02_02
3312	SB07_1642_20150603_1547_K	3-Jun-15	1547	boat	34.41453	-119.79665	3312_SB07_1642_20150603_1547_DD	No		
3313	SB07_1647_20150603_1547_L	3-Jun-15	1547	boat	34.41453	-119.79665	3313_SB07_1647_20150603_1547_PP	No		
3314	SB04_4967b_20150524_1837_A	24-May-15	1837	shore	34.45810	-120.02992	3314_SB07_1920_20150605_1404_KK	No		
3314	SB07_1631_20150603_1547_J	3-Jun-15	1547	boat	34.41453	-119.79665	3314_SB07_1920_20150605_1404_KK	No		
3314	SB07_1727_20150604_1431_E	4-Jun-15	1431	boat	34.39863	-119.73988	3314_SB07_1920_20150605_1404_KK	No		
3314	SB07_1920_20150605_1404_E	5-Jun-15	1404	boat	34.46960	-120.22445	3314_SB07_1920_20150605_1404_KK	No		
3314	SB01_9246_20150606_1050_A	6-Jun-15	1050	shore	34.40719	-119.87839	3314_SB07_1920_20150605_1404_KK	No		
3314	SB08_6531_20150607_1603_K	7-Jun-15	1603	boat	34.40273	-119.86791	3314_SB07_1920_20150605_1404_KK	No		
3315	SB07_1926_20150605_1457_C	5-Jun-15	1457	boat	34.46910	-120.19225	3315_SB07_1926_20150605_1457_W	No		
3315	SB01_9222_20150606_1050_B	6-Jun-15	1050	shore	34.40719	-119.87839	3315_SB07_1926_20150605_1457_W	No		
3315	SB08_6551_20150607_1603_L	7-Jun-15	1603	boat	34.40273	-119.86791	3315_SB07_1926_20150605_1457_W	No		
3316	SB07_1931_20150605_1457_A	5-Jun-15	1457	boat	34.46910	-120.19225	3316_SB07_1931_20150605_1457_H	No		
3317	SB08_6214_20150606_1256_E	6-Jun-15	1256	boat	34.41295	-119.88620	3317_SB08_6214_20150606_1256_VV	No		
3318	SB08_6046_20150606_1256_G	6-Jun-15	1256	boat	34.41295	-119.88620	3318_SB08_6450_20150607_1443_WW	No		
3318	SB08_6450_20150607_1443_F	7-Jun-15	1443	boat	34.46147	-120.10345	3318_SB08_6450_20150607_1443_WW	No		
3319	SB01_8809_20150601_1532_A	1-Jun-15	1532	shore	34.45810	-120.02992	3319_SB08_6480_20150607_1443_BB	Yes	34128	34128_411_20Jan11_02_03
3319	SB08_6120_20150606_1256_L	6-Jun-15	1256	boat	34.41295	-119.88620	3319_SB08_6480_20150607_1443_BB	Yes	34128	34128_411_20Jan11_02_03
3319	SB08_6480_20150607_1443_E	7-Jun-15	1443	boat	34.46147	-120.10345	3319_SB08_6480_20150607_1443_BB	Yes	34128	34128_411_20Jan11_02_03
3320	SB08_6482_20150607_1443_A	7-Jun-15	1443	boat	34.46147	-120.10345	3320_SB08_6482_20150607_1443_M	Yes	34118	34118_349_30Nov10_02_02
3321	SB08_6199_20150606_1256_F	6-Jun-15	1256	boat	34.41295	-119.88620	3321_SB08_6504_20150607_1443_XX	No		
3321	SB08_6504_20150607_1443_B	7-Jun-15	1443	boat	34.46147	-120.10345	3321_SB08_6504_20150607_1443_XX	No		
3322	SB01_8833_20150601_1532_D	1-Jun-15	1532	shore	34.45810	-120.02992	3322_SB01_8833_20150601_1532_P	Yes	34107	34107_310_16Nov10_02_01
3323	SB01_8977_20150601_1532_F	1-Jun-15	1532	shore	34.45810	-120.02992	3323_SB01_8977_20150601_1532_X	No		
3324	SB04_4978_20150524_1837_B	24-May-15	1837	shore	34.45810	-120.02992	3324_SB04_4978_20150524_1837_V	Yes	34171	34171_141_29Feb12_02_02
3325	SB03_4793_20150601_1028_E	1-Jun-15	1028	shore	34.43138	-119.91676	3325_SB04_7975_20150601_1732_A	Yes	34081	34081_209_30Nov10_02_02
4401	SB01_0700_20150527_1309_B	27-May-15	1309	shore	34.45810	-120.02992	4401_SB04_6592_20150528_1400_CCC	No		
4401	SB04_6592_20150528_1400_B	28-May-15	1400	boat	34.41183	-119.80700	4401_SB04_6592_20150528_1400_CCC	No		
4402	SB04_6978_20150528_1510_H	28-May-15	1510	boat	34.41550	-119.66267	4402_SB04_6978_20150528_1510_K	No		
4403	SB04_7023_20150528_1642_L	28-May-15	1642	boat	34.40300	-119.54817	4403_SB04_7023_20150528_1642_X	Yes	23031	23031_199_13Dec13_02_01
4404	SB04_7659_20150528_1805_Y	28-May-15	1805	boat	34.32817	-119.40533	4404_SB04_7659_20150528_1805_II	Yes	45051	45051_427_20Jan11_02_09
4405	SB07_1549b_20150603_1508_D	3-Jun-15	1508	boat	34.41768	-119.89425	4405_SB07_1839_20150605_1404_Y	Yes	45025	45025_042_16Nov10_02_02
4405	SB07_1839_20150605_1404_H	5-Jun-15	1404	boat	34.46960	-120.22445	4405_SB07_1839_20150605_1404_Y	Yes	45025	45025_042_16Nov10_02_02
4406	SB07_1914_20150605_1404_G	5-Jun-15	1404	boat	34.46960	-120.22445	4406_SB07_1914_20150605_1404_J	Yes	44620	44620_052_25Jan10_02_01
4407	SB08_6030_20150606_1256_J	6-Jun-15	1256	boat	34.41295	-119.88620	4407_SB08_6030_20150606_1256_RR	No		
4408	SB08_6105_20150606_1256_H	6-Jun-15	1256	boat	34.41295	-119.88620	4408_SB08_6105_20150606_1256_OO	No		
4410	SB08_6429_20150607_1443_D	7-Jun-15	1443	boat	34.46147	-120.10345	4410_SB08_6429_20150607_1443_YY	No		
4411	SB08_6488_20150607_1443_H	7-Jun-15	1443	boat	34.46147	-120.10345	4411_SB08_6488_20150607_1443_AAA	No		
4412	SB03_4459_20150601_1028_B	1-Jun-15	1028	shore	34.43138	-119.91676	4412_SB03_4459_20150601_1028_W	Yes	34177	34177_190_31Jan12_02_08
4413	SB04_4985_20150524_1837_D	24-May-15	1837	shore	34.45810	-120.02992	4413_SB04_4985_20150524_1837_U	No		
4414	SB04_7996_20150601_1732_C	1-Jun-15	1732	shore	34.45810	-120.02992	4414_SB04_7996_20150601_1732_M	No		

Appendix 2. RBOS Photo-Identification Catalog.

Coastal Bottlenose Dolphins near the Refugio Beach Oil Spill Santa Barbara County, California 24 May – 7 June 2015

Catalog Curator
David W. Weller, Ph.D.
Southwest Fisheries Science Center
8901 La Jolla Shores Drive
La Jolla, CA 92037-1508 USA

Catalog Content

This catalog presents identification photographs of 66 Pacific coast bottlenose dolphins (*Tursiops truncatus*) obtained during dedicated boat- and shore-based research surveys conducted between 24 May and 7 June 2015 in the Refugio Beach Oil Spill (RBOS) area north of Santa Barbara, California. These images were collected by the Southwest Fisheries Science Center (NOAA Fisheries, National Marine Fisheries Service) under NMFS Permit 14097.

The overarching objectives of compiling this catalog were twofold: (1) to facilitate regional and international cooperation and collaboration between current and future research groups collecting data on Pacific coast bottlenose dolphins; and (2) to provide an individual identification numbering scheme and standardized images of Pacific coast bottlenose dolphins that can be used for comparison by other research groups and organizations.

Image Quality

When the type specimen photograph was selected for display in this catalog, the best image was selected from a given sighting, cropped and resized if needed. This process of resizing, combined with conversion to the PDF file format of the catalog, resulted in some loss of image resolution but the original native resolution images are archived and linked to the catalog so if a potential match is made, it can be confirmed with the original photograph(s). Native resolution images are available by request from the Southwest Fisheries Science Center.

Terms and Definitions

Each catalog page contains one dorsal fin image, which may be in left or right orientation. The textual data shown with each individual dolphin image provides the following information: (1) the catalog identification (RBOS ID) number systematically assigned to a dolphin after photographing its dorsal fin for the first time; (2) the image file name (see Fig. 1 below); (3) the date the photograph was taken.

Catalog Curator

Please contact dave.weller@noaa.gov at the Southwest Fisheries Science Center for questions about this catalog and/or to request original native resolution images.

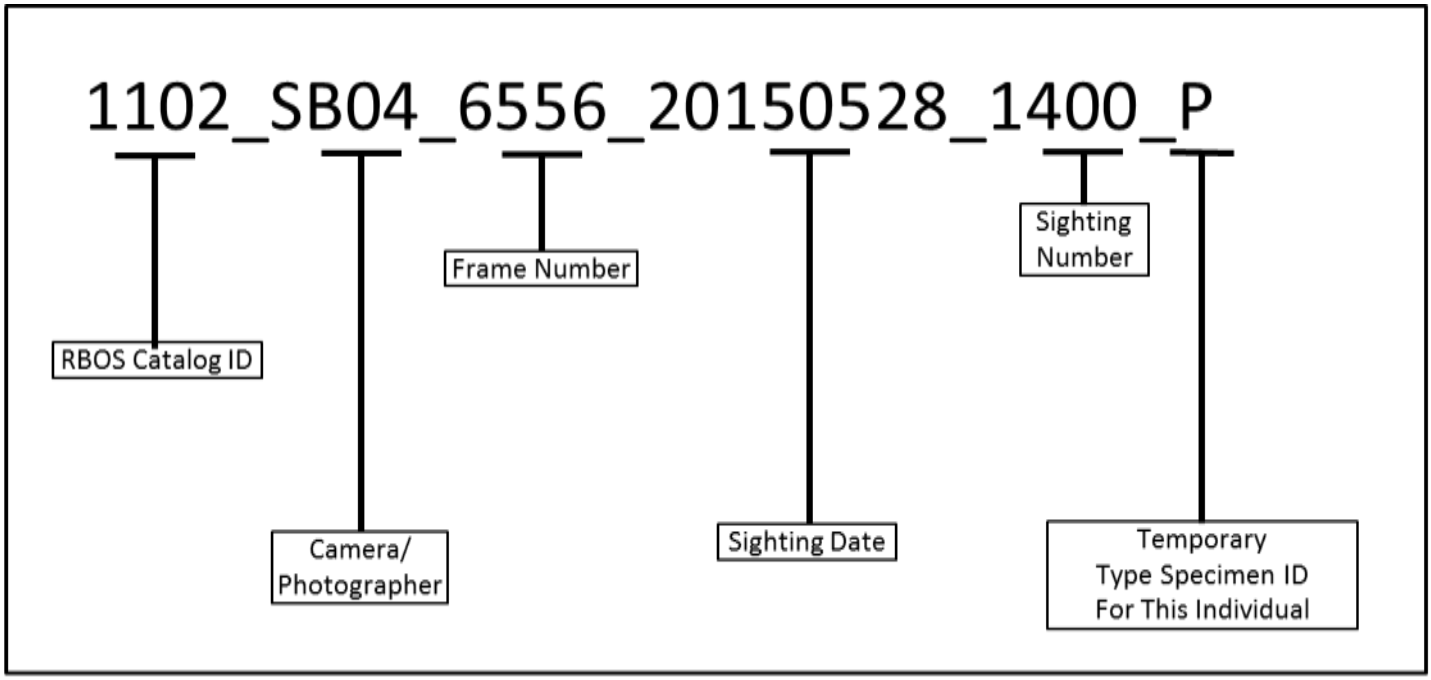


Figure 1. Image file labeling protocol used with RBOS type-specimens.

RBOS ID	File Name	Date Taken
1101	1101_SB04_5606_20150526_1815_L	26_May_2015

RBOS ID	File Name	Date Taken
1102	1102_SB04_6556_20150528_1400_P	28_May_2015

RBOS ID	File Name	Date Taken
1103	1103_SB04_7240_20150528_1642_E	28_May_2015

RBOS ID	File Name	Date Taken
1104	1104_SB04_7630_20150528_1805_HH	28_May_2015

RBOS ID	File Name	Date Taken
1105	1105_SB07_1604_20150603_1547_U	03-Jun-2015

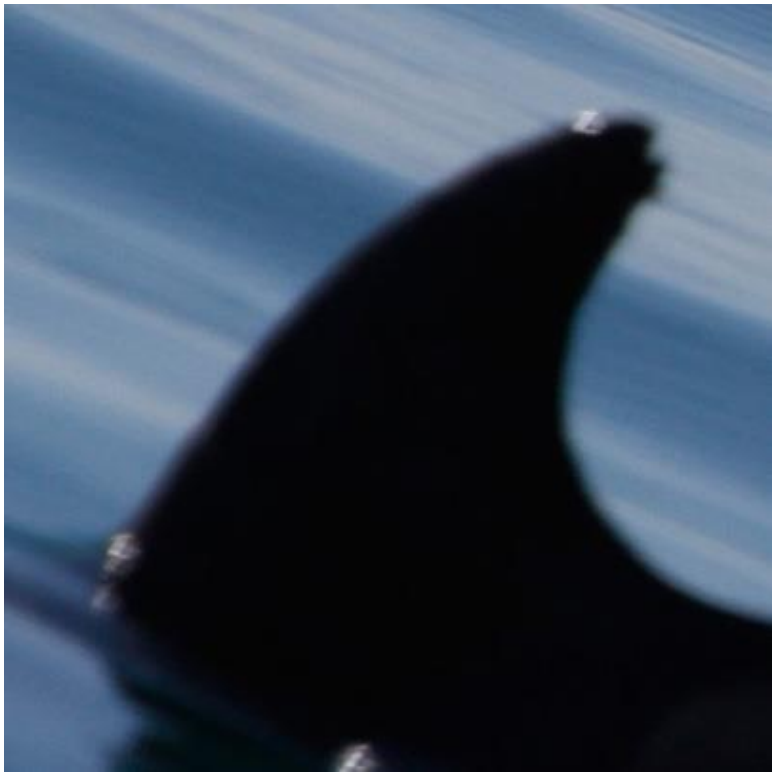
RBOS ID	File Name	Date Taken
1106	1106_SB07_1622_20150603_1547_A	03-Jun-2015

RBOS ID	File Name	Date Taken
1107	1107_SB07_1626_20150603_1547_O	03-Jun-2015

RBOS ID	File Name	Date Taken
1108	1108_SB07_1662_20150604_1233_NN	04-Jun-2015

RBOS ID	File Name	Date Taken
1109	1109_SB07_1688_20150604_1233_G	04-Jun-2015

RBOS ID	File Name	Date Taken
1110	1110_SB08_6458_20150607_1443_BBB	07-Jun-2015



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1111	1111_SB07_1851_20150605_1404_JJ	05-Jun-2015

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RBOS ID	File Name	Date Taken
1113	1113_SB01_0327_20150525_1745_E	25-May-2015

RBOS ID	File Name	Date Taken
1114	1114_SB03_4454_20150601_1028_F	01-Jun-2015

RBOS ID	File Name	Date Taken
2201	2201_SB04_5508_20150526_1815_S	26-May-2015

RBOS ID	File Name	Date Taken
2202	2202_SB04_6622_20150528_1400_EE	28-May-2015

RBOS ID	File Name	Date Taken
2203	2203_SB04_6952_20150528_1510_Q	28-May-2015

RBOS ID	File Name	Date Taken
2204	2204_SB04_6994_20150528_1642_DDD	28-May-2015

RBOS ID	File Name	Date Taken
2205	2205_SB04_7106a_20150528_1642_FF	28-May-2015

RBOS ID	File Name	Date Taken
2206	2206_SB04_7118_20150528_1642_Z	28-May-2015

RBOS ID	File Name	Date Taken
2207	2207_SB04_7408_20150528_1642_R	28-May-2015

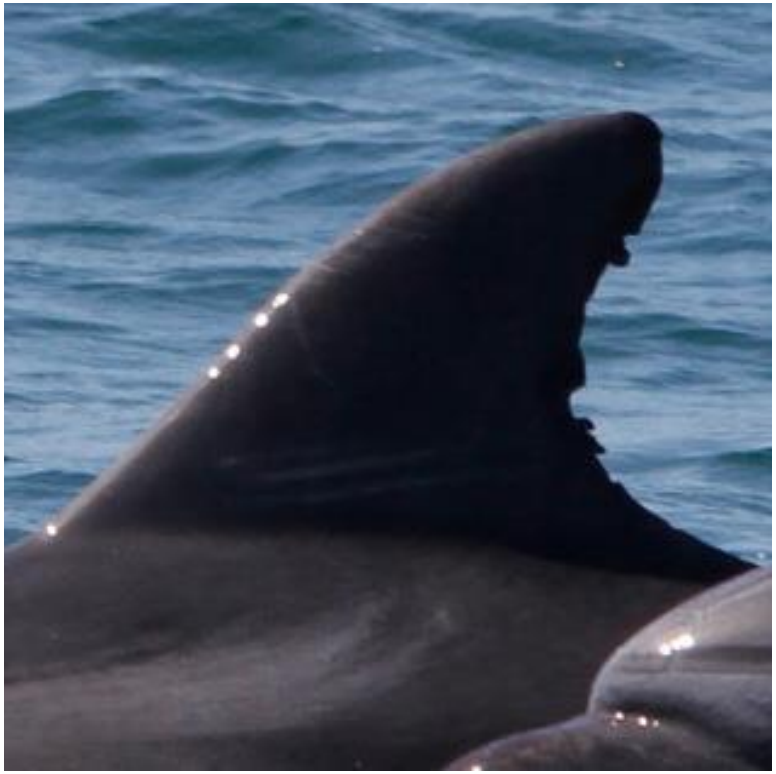
RBOS ID	File Name	Date Taken
2208	2208_SB07_1609_20150603_1547_SS	03-Jun-2015

RBOS ID	File Name	Date Taken
2209	2209_SB07_1711_20150604_1351_B	04-Jun-2015

RBOS ID	File Name	Date Taken
2210	2210_SB08_6149_20150606_1256_ZZ	06-Jun-2015

RBOS ID	File Name	Date Taken
2211	2211_SB08_6210_20150606_1256_C	06-Jun-2015

RBOS ID	File Name	Date Taken
2212	2212_SB08_6268_20150606_1504_D	06-Jun-2015



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RBOS ID	File Name	Date Taken
3301	3301_SB04_5658_20150526_1815_V	26-May-2015

RBOS ID	File Name	Date Taken
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RBOS ID	File Name	Date Taken
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RBOS ID	File Name	Date Taken
3304	3304_SB04_7043_20150528_1642_CC	28-May-2015

RBOS ID	File Name	Date Taken
3305	3305_SB04_7091_20150528_1642_AA	28-May-2015

RBOS ID	File Name	Date Taken
3306	3306_SB04_7113_20150528_1642_GG	28-May-2015

RBOS ID	File Name	Date Taken
3307	3307_SB04_7401_20150528_1642_UU	28-May-2015

RBOS ID	File Name	Date Taken
3308	3308_SB04_7632_20150528_1805_I	28-May-2015

RBOS ID	File Name	Date Taken
3309	3309_SB07_1553_20150603_1508_EEE	03-Jun-2015

RBOS ID	File Name	Date Taken
3310	3310_SB07_1557_20150603_1508_F	03-Jun-2015

RBOS ID	File Name	Date Taken
3311	3311_SB07_1613_20150603_1547_QQ	03-Jun-2015

RBOS ID	File Name	Date Taken
3312	3312_SB07_1642_20150603_1547_DD	03-Jun-2015

RBOS ID	File Name	Date Taken
3313	3313_SB07_1647_20150603_1547_PP	03-Jun-2015

RBOS ID	File Name	Date Taken
3314	3314_SB07_1920_20150605_1404_KK	05-Jun-2015

RBOS ID	File Name	Date Taken
3315	3315_SB07_1926_20150605_1457_W	05-Jun-2015

RBOS ID	File Name	Date Taken
3316	3316_SB07_1931_20150605_1457_H	05-Jun-2015

RBOS ID	File Name	Date Taken
3317	3317_SB08_6214_20150606_1256_VV	06-Jun-2015

RBOS ID	File Name	Date Taken
3318	3318_SB08_6450_20150607_1443_WW	07-Jun-2015

RBOS ID	File Name	Date Taken
3319	3319_SB08_6480_20150607_1443_BB	07-Jun-2015

RBOS ID	File Name	Date Taken
3320	3320_SB08_6482_20150607_1443_M	07-Jun-2015

RBOS ID	File Name	Date Taken
3321	3321_SB08_6504_20150607_1443_XX	07-Jun-2015

RBOS ID	File Name	Date Taken
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RBOS ID	File Name	Date Taken
3323	3323_SB01_8977_20150601_1532_X	01-Jun-2015

RBOS ID	File Name	Date Taken
3324	3324_SB04_4978_20150524_1837_V	24-May-2015

RBOS ID	File Name	Date Taken
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RBOS ID	File Name	Date Taken
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RBOS ID	File Name	Date Taken
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RBOS ID	File Name	Date Taken
4403	4403_SB04_7023_20150528_1642_X	28-May-2015

RBOS ID	File Name	Date Taken
4404	4404_SB04_7659_20150528_1805_II	28-May-2015

RBOS ID	File Name	Date Taken
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RBOS ID	File Name	Date Taken
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RBOS ID	File Name	Date Taken
4407	4407_SB08_6030_20150606_1256_RR	06-Jun-2015

RBOS ID	File Name	Date Taken
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RBOS ID	File Name	Date Taken
4410	4410_SB08_6429_20150607_1443_YY	07-Jun-2015

RBOS ID	File Name	Date Taken
4411	4411_SB08_6488_20150607_1443_AAA	07-Jun-2015

RBOS ID	File Name	Date Taken
4412	4412_SB03_4459_20150601_1028_W	01-Jun-2015

RBOS ID	File Name	Date Taken
4413	4413_SB04_4985_20150524_1837_U	25-May-2015

RBOS ID	File Name	Date Taken
4414	4414_SB04_7996_20150601_1732_M	01-Jun-2015