

*W/210*

PRELIMINARY REPORT

EASTERN AREA CRUISE 6  
1-10 April 1967

including  
EASTERN GRID SURVEY 5

Prepared by

Brian Harrington

This report is a summary of observations and collections made by P.O.B.S.P. personnel in the eastern Pacific Ocean from 1-10 April, 1967. Participating observers included Brian Harrington (biologist-in-charge), Richard Heiden, and James Lewis. Superior cooperation was received from the officers and crew of the U.S.N.S. SHEARWATER (T-AG 177). The grid cruise track (see map 1) was followed closely, and all positions are considered accurate within five miles except on 4 April when they may have been slightly less accurate due to continuous cloudy weather which prevented an accurate fix. One major deviation from the nominal cruise track on 8 April near point "M" was a result of orders directing the SHEARWATER to follow and identify a Russian fishing boat.

This report is divided into two sections; the first deals with the eastern grid survey while the second summarizes the non-grid portion of the cruise.

#### EASTERN GRID SURVEY NO. 5

The eastern grid survey was conducted from 1215 hours 2 April until 1900 hours 9 April, 1967. A total of 94.8 hours of diurnal survey was conducted over 967 linear miles. A summary may be found in table 1. An additional 14 hours of nocturnal observation were conducted and are summarized in table 5.

Weather data during this survey were recorded on appropriate forms and ADP sheets. In general, light winds and seas predominated during the first third of the survey, and were followed by moderate winds and seas over the remainder of the grid trip. These conditions were similar enough to those of the previous two surveys to make reasonable comparisons of populations between the three.

In general, the bird population data collected on this survey confirmed the occurrence of migrational movements suspected of being under way during the previous two surveys. These changes will be discussed in the species accounts.

Mammals comprised a very significant percentage of the total air-breathing animals recorded on this survey. In fact, from the standpoint of numbers, they were more common than birds by more than two to one. And as mammals are more

difficult to see than birds in uncalm seas, they may have been even more abundant than observations suggested. As no method of weighting which allows for the state of the sea has been devised, it is unreasonable to calculate comparative densities. Thus suffice it to say that there were many mammals seen, and probably more were unnoticed.

A total of forty-one bathythermograph casts was made over the grid track at four hour intervals. No analysis of these has yet been made.

#### FLOCKING

As on previous cruises, very little flocking was noticed in the grid except for Red Phalaropes and storm petrels. Flocking of these two species will be discussed in the grid species accounts.

#### GRID SPECIES ACCOUNTS

Black-footed Albatross (Diomedea nigripes)      54 + 1 nocturnal

Overall grid density was identical to that found on the last survey, and a north to south density decline was again observed. But east-west distribution was noticeably different, there being four times as great a density in the east than in the west. On previous surveys east-west distribution has been virtually even.

During this survey an effort was made to make note of any birds which had a white rump (indicative of adult plumage), but only one was seen. This would suggest that few, if any, of the 1967 Hawaiian nesting <sup>population</sup> have yet returned to this area.

Fulmar (Fulmarus glacialis)      4

The low numbers indicate that the grid winter population has migrated north. It is to be expected that a few stragglers will remain behind. All four sightings were of dark phase birds.

New Zealand Shearwater (Puffinus bulleri) 3

Three sightings in the northwest portion of the grid represent the first record for this species in the grid. All were traveling north.

Pink-footed Shearwater (Puffinus creotopus) 1

A single bird in the western half of the central section was the first ~~grid recording for this species.~~ Judging by non-grid observations, it was probably a migrant.

Sooty Shearwater (Puffinus griseus) 31

Although most were identified as being either Sooty or Slender-billed Shearwater, none with good Slender-bill field marks were recorded. Also, judging from large non-grid collections, all were probably Sooties. The influx from previous surveys is accounted for by a northward migration from the breeding grounds in southern latitudes; virtually all of the observations were of single birds traveling north. It hardly need be said that because of this, north-south densities as calculated on table two are practically meaningless. But in view of non-grid observations, it is quite interesting that east-west densities within the grid were virtually even. As large concentrations were found off the channel islands and around Cortez Bank, one would expect that grid densities of northward bound birds would have been much higher in the eastern part of the grid. Additional surveys may explain this phenomenon.

Herald's Petrel (Pterodroma heraldica) 1

The collection of this species constitutes the first reliable record for the grid. The field identification of one in January is the only other sighting for the grid.

Leach's Storm Petrel (Oceanodroma leucorhoa) 125+ 7 Nocturnal  
Storm Petrel Species (Unidentified) 12 + 4 nocturnal

Although not usually recorded to species, probably all of the storm petrels

noted in the grid were Leach's. As has been noted before, the density distribution followed no obvious pattern; although distribution changes since last cruise were evident, they are not explained.

The south section of the grid had three times as great a density as the central area, and there appeared to be a general trend of storm petrel movement towards the north. This, along with data suggesting an influx into the north section, indicates that a northward movement is underway.

Two specimens were collected during this survey. Both were in moderate fat condition, but neither had gonads near breeding condition.

Jaegers 0

This was the first eastern grid survey on which no jaegers were recorded.

Glaucous-winged Gull (Larus glaucescens) 1

A single immature was noted in the central section.

Herring Gull (Larus argentatus) 23 + 3 nocturnal

The population decline of this species in the grid is continuing. Highest density was recorded in the north section, with a virtual absence in the central and southern areas. The gonads of one adult collected within ten miles of the grid were near breeding condition.

Black-legged Kittiwake (Rissa tridactyla) 0

This is the first grid survey to date on which no kittiwakes were seen.

Sabine's Gull (Xema sabini) 1

A single sighting in the north section was the first grid record.

Red Phalarope (Fulicarius phalaropus) 285 + 23 nocturnal

As on the last survey, the Red Phalarope was the most abundant species in the grid, even though the density has decreased. The distribution again appeared to follow no pattern, except that the highest density has shifted to the north

section where none were seen on the last cruise. East-west density distribution again favored the western half.

Although some single birds were recorded, most sightings were of flocks of varying size.

Five specimens were collected; all were in fat condition, and none had enlarged gonads.

### Alcids

This is the first grid cruise on which no alcids were seen.

Western Meadowlark	( <u>Sturnella neglecta</u> )	1
Land Bird sp.	(Unidentified)	2

A single Western Meadowlark was collected in the eastern half of the north section more than a hundred miles from the mainland. An additional two landbirds were seen flying aboard a passing ship within twenty miles of the area where the meadowlark was collected. More than likely, all of these birds were stray migrants.

Small Pterodroma	( <u>Pterodroma</u> sp.)	4
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Three sightings were in the western half of the north section. Another sighting in the eastern half of the south section was identified as probably being Pterodroma leucoptera and had field marks resembling those of the brevipes population. To date most of the small Pterodroma which have been reasonably well seen have been thought to be P. leucoptera. A few, which have yet to be well viewed, may be Cook's Petrels (Pterodroma cookii).

## GRID MAMMALS

As mentioned earlier in this report, mammals were noted in good numbers in the grid. A total of 1312 individuals of three identified and four unidentified species was recorded. The north section yielded the greatest number of sightings, but, as emphasized earlier, it was this area in which we had calm seas and hence better conditions for mammal sightings.

### North section

The Otariids were not as common as on some earlier cruises. Seventeen unidentified seals (most were probably Fur Seals) and one unidentified sea lion were observed.

Cetaceans were recorded in good numbers. Most impressive were two schools of the rare Right Whale Dolphin (Lissodelphis borealis). One school of over a thousand was seen traveling north, and shortly after another group of 150, also moving north, was recorded. Other Cetaceans in the north area included 7 Sperm Whales (Physeter catodon), sixteen unidentified whales, and one whale or dolphin.

### Central Section

Mammals in the central section were represented by two schools of Baird's Dolphin (Delphinus delphis) totaling one hundred individuals. Several swam ahead of the ship for varying lengths of time.

### South Section

In the south area 12 Sperm Whales, seven Baird's Dolphin, and one unidentified whale were seen.

### NON-GRID SUMMARY

The non-grid portion of this cruise includes two periods of observation . The first includes parts of two days while enroute from Long Beach to the grid, while the second was one day between the grid and Long Beach. Because the bird populations encountered on these two tracks are quite different, each is treated separately (see table 7). On the first track 9.2 hours of diurnal observation were conducted over 87 linear miles. Collecting of specimens was done shortly before entering the grid. On the second track, 11.7 hours of observation were made over 113 linear miles, and again collections were made.

The activity of birds in both non-grid areas was similar to that recorded last month, with the exception of an influx of Sooty and Pink-footed Shearwaters. The exodus of some of the winter residents was noted and the occurrence of some transients was also noted.

As on previous trips, an effort to determine movements of birds between the coast and the grid was made, but there are still insufficient data to make any reasonable statements. Coastal-types of gulls were noted within thirty miles of the north leg of the grid, and as far as 60 miles off of San Clemente Island. Herring Gulls were found in both pelagic and coastal waters, but whether they move freely between the two will not be possible to determine without more sophisticated methods than are presently employed. The same holds true for the Jaegers.

Flocking was a prominent activity on both non-grid tracks; most groups were resting or traveling migrants, but some flocks of resident gulls were also seen. This activity will be discussed in the species accounts.

### NON-GRID SPECIES ACCOUNTS

#### Albatross

All but one of the sightings were outside the Channel Islands. On the north



track 9 were seen, several of which were following other ships.

One Laysan Albatross was seen on the north track.

### Shearwaters

Fulmar were recorded in low numbers on the portion of the north track outside the Santa Barbara Channel. All were dark phase.

Pink-footed Shearwater were recorded in good numbers (55) on the south track where one was collected. Most were scattered among resting or traveling flocks of Sooty Shearwater. On the north track only two Pale-foots were seen.

Sooty Shearwater were very abundant (1980) on the south track. Many were just west of Cortez Banks, while most were between the Banks and San Clemente I. Most were sitting on the water in large flocks, but when flushed flew towards the north. A total of 27 was collected, and virtually all had full stomachs. On the north leg only five were seen, all of which were traveling north.

Although recorded on the log as either Sooty or Slender-billed Shearwaters, none of the birds observed or collected had the field marks of Slender-bills.

### Storm Petrels

One Leach's-type storm petrel was seen on the south track outside the outer banks.

### Cormorants

Nine unidentified Cormorants were seen on the north leg, and five on the south track. In addition a single flock of Pelagic Cormorants was seen near Catalina flying towards the north.

The sighting of a single cormorant about 60 miles off San Clemente was the farthest offshore record for the Eastern Area Cruises.

### Black Brant

Two flocks totaling 140 birds were observed traveling north in the Santa Barbara Channel.

### Red Phalarope

Sightings of one on the north leg and 12 (one collected) on the south track approximate the number seen on the last non-grid cruise.

### Jaegers

Three unidentified Jaegers and one Pomarine Jaeger were seen on the north leg. On the south track two Long-tailed Jaegers and 21 unidentified Jaegers (probably mostly Pomarine) were seen. Most were in areas where the Sooty Shearwater were abundant, but none were seen chasing the shearwaters.

### Gulls

Western Gulls were observed on the north and south tracks, but more commonly on the latter. Some individuals were seen 60 miles off San Clemente Island, but most were closer to shore.

Herring Gulls were not noted inside the channel islands on either leg, but may have been present in large groups of unidentified gulls. Outside the islands they were present in low numbers, increasing to seaward. Two specimens were collected on the north leg.

California Gulls are the most abundant gulls along this coast. Probably most of the gulls on both tracks were of this species, but as it is all but impossible to make the careful identification of each gull in a large flock, most were unidentified. On the south track California gulls were noted as far as 50 miles off San Clemente Island.

One adult Ring-billed Gull was seen in the Santa Barbara Channel.

Highest numbers of Bonaparte's Gulls were noted on the north track. All sightings on both tracks (all inside the islands) were of adults in breeding plumage.

A single Sabine's Gull was seen on the north track just before entering the grid.

Forster's Tern

Forster's Terns were seen only on the south track, and were also noted in Long Beach Harbor before departing on the cruise. None were seen outside the Channel Islands.

Alcids

Only a small percentage of the alcids seen were identified. Rhinoceros auklets (2 specimens collected) comprised most of the identifications on both tracks, and three Xantus Murrelets were seen just south of Catalina Island. An additional five unidentified alcids were seen on the north track, and 34 on the southern leg.

Table 1: Diurnal Grid Summary, 2-9 April, 1967, Eastern Pacific Grid Cruise 5.

SPECIES	Number	% of Grid Total	no/lin. mile	no/sq. mile	No. Collected	No. Sera samples
Black-foot Albatross*	54	9.3	.056	.014		
Fulmar+	4	.7	.004	.002		
N.Z. Shearwater+	3	.5	.003	.002		
Pink-footed Shearwater+	1	.2	.001	.001		
Herald's Petrel+	1	.2	.001	.001	1	1
Leach's Storm Petrel †	125	21.6	.129	.129	2	1
Red Phalarope ~	285	49.3	.294	.588	6	2
Glaucous-winged Gull+	1	.2	.001	.001		
Herring Gull+	23	4.0	.024	.012		
Sabine's Gull+	1	.2	.001	.001		
W. Meadowlark	1	.2	-	-	1	
Shearwater/Petrel+	8	1.4	.008	.004		
Sooty/Slenderbill +	31	5.4	.032	.016		
Small Pterodroma +	4	.7	.004	.002		
Gull sp. +	12	2.9	.018	.009		
Land bird sp.	2	.3	-	-		
Bird sp. +	5	.9	.005	.003		
Storm Petrel sp. ‡	<u>12</u>	<u>2.1</u>	<u>.012</u>	<u>.012</u>		
TOTALS:	578	100.1	.593	.797	10	4
<u>NON-GRID COLLECTIONS:</u>						
Sooty Shearwater					29	2
Red Phalarope					1	0
Herring Gull					2	2
Rhinoceros Auklet					2	0

\* Presumed visible for 2 miles

+ Presumed visible for 1 mile

~ Presumed visible for 1/4 mile

‡ Presumed visible for 1/2 mile

Table 2: Sectional Breakdown of Eastern Pacific Grid Bird Populations, 1-9 April, 1967

	NORTHEAN				CENTRAL				SOUTHERN			
	No.	% of Grid Species Total	% of total birds IN NORTH section	Birds/sq. mile	No.	%	%	B/sq. mi.	No.	%	%	B/sq. mi.
Black-footed Albatross*	34	51.5	12.4	.031	20	30.3	12.7	.017	12	18.2	7.6	.008
Fulmar	3	.75	1.1	.006	1	25	.6	.002	0			
N.Z. Shearwater	3	100.0	1.1	.006	0				0			
Pink-foot Shearwater	0				1	100.0	.6	.002	0			
Herald's Petrel	1	100	.4	.002	0				0			
Leach's Storm Petrel	42	33.6	15.3	.153	16	12.8	10.1	.054	67	53.6	42.7	.167
Red Phalarope	129	45.2	46.9	.938	99	34.8	62.6	.668	57	20.0	36.2	.284
Glaucous-winged Gull	0				1	100	.6	.002	0			
Herring Gull	19	82.6	6.9	.034	2	8.7	1.3	.004	2	8.7	1.3	.003
Sabine's Gull	1	100	.4	.002	0				0			
W. Meadowlark	1	100	.4	-	0				0			
Shearwater/Petrel	5	62.5	1.8	.009	0				3	37.5	1.9	.004
Sooty/Slenderbill	9	29.0	3.3	.016	13	42.0	8.2	.022	9	29.0	5.7	.011
Small Pterodroma	3	75.0	1.1	.006	0				1	25.0	.6	.001
Storm Petrel sp.	5	41.7	1.8	.008	4	33.4	2.5	.014	3	24.9	1.9	.007
Gull sp.	16	94.0	5.8	.023	0				1	6.0	.6	.001
Land Bird sp.	2	100	.7	-	0				0			
Bird sp.	2	40.0	.7	.004	1	20.0	.6	.002	2	40.0	1.3	.003
TOTALS	275		100.1	1.253	158		99.8	.787	157		99.8	.489
Total Miles		275				291				401		

\* The total for Black-footed Albatross does not agree with the grid total due to an allowance for birds following the ship from one area to another.

Table 3: East-west Breakdown of Eastern Grid Bird Populations, 2-9 April, 1967

	EAST				WEST			
	No.	% of Grid species total	% of Total birds in East section	Birds/sq. mile	No.	%	%	B/sq. mi.
Black-footed Albatross*	49	88	13.8	.019	7	12	3.1	.005
Fulmar	4	100	1.1	.003	0			
N.Z. Shearwater	0				3	100	1.3	.005
Pink-footed Shearwater	0				1	100	.4	.002
Herald's Petrel	0				1	100	.4	.002
Leach's Storm Petrel	71	57	20.0	.111	54	43	24.0	.164
Red Phalarope	154	54	43.4	.482	131	46	58.3	.796
Glaucous-winged Gull	1	100	.3	.001	0			
Herring Gull	21	91	5.9	.017	2	9	.9	.003
Sabine's Gull	1	100	.3	.001	0			
W. Meadowlark	1	100	.3	-	0			
Shearwater/Petrel	4	50	1.1	.003	4	50	1.8	.006
Sooty/Slenderbill	22	71	6.2	.017	9	29	4.0	.014
Small Pterodroma	1	25	.3	.001	3	75	1.3	.005
Storm Petrel sp.	6	50	1.7	.009	6	50	2.7	.018
Gull sp.	17	100	4.8	.014	0			
Land Bird sp.	2	100	.6	-	0			
Bird sp.	1	20	.3	.001	4	80	1.8	.006
TOTALS	355		100.1	.679	225		100.0	1.026
Total miles		638				967		

\* The total for Black-footed Albatross does not agree with the grid total due to an allowance for birds following the ship from one area to another.

Table 4: Cruise Data Summary, Eastern Area Cruise 6: 1-10 April, 1967

Date	1	2	3	4	5	6	7	8	9	10
No. hours diurnal watch	2.8	12.7	12.6	12.5	12.8	12.7	12.9	12.5	12.5	11.7
No. diurnal miles	32	113	115	131	130	132	126	142	133	113
Birds/lin. mile	9.91	.805	1.45	.542	.138	.910	.540	.274	.376	21.41
No. Birds	324	91	167	71	18	120	68	39	50	2423

Table 5: Summary of Nocturnal Observations, Eastern Grid Cruise 5

<u>Date</u>	2	3	4	5	6	7	8	Total
Hours of Observation	2	2	2	2	2	2	2	14
Gull sp.	3							3
Black-foot albatross			1					1
Storm Petrels		6		1	4			11
Red Phalarope		17	1	2		2	1	23
Bird sp.	$\frac{3}{3}$	$\frac{4}{27}$	$\frac{2}{2}$	$\frac{3}{3}$	$\frac{4}{4}$	$\frac{2}{2}$	$\frac{1}{1}$	$\frac{4}{42}$

CRUISE PLAN

I. CRUISE PERIOD: April 1-10, 1967 (Cruise 0050025)

II. CRUISE VESSEL: U.S.N.S. SHEARWATER (T-AG 177)

III. ITINERARY:

1 April	Depart Long Beach, California.
2-9 "	Conduct survey of eastern Pacific Grid following specified cruise track.
10 "	Return to Long Beach, California.

The biologist-in-charge has full authority, in consultation with the ship's master, to determine the use of available time in and out of the eastern grid, in accordance with bird populations encountered, so as to achieve cruise objectives most effectively.

IV. PERSONNEL:

Brian Harrington (biologist-in-charge), Richard Heiden, and James Lewis.

V. OBJECTIVES:

The objectives for this survey are the same as for former EAC cruise plans.

VI. PROCEDURES:

Follow procedures established on previous EAC trips.



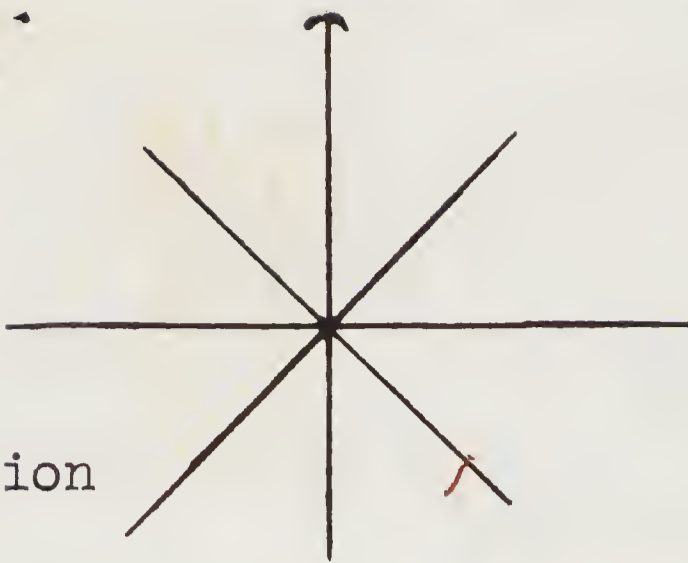
Table 6: Diurnal Density of Species Groups in the Eastern Grid  
2-9 April, 1967

<u>Species Group</u>	<u>No. Birds</u>	<u>Birds/lin. mile</u>	<u>Birds/sq. mile</u>	<u>Percent of Total Birds</u>
Albatross	54	.056	.014	9.3
Shearwater/Petrels	52	.053	.027	9.1
Storm Petrels	137	.141	.141	23.7
Phalaropes	285	.294	.588	49.3
Gulls	42	.044	.023	7.3
Miscellaneous	8	.011	.009	1.4





OBSERVERS:

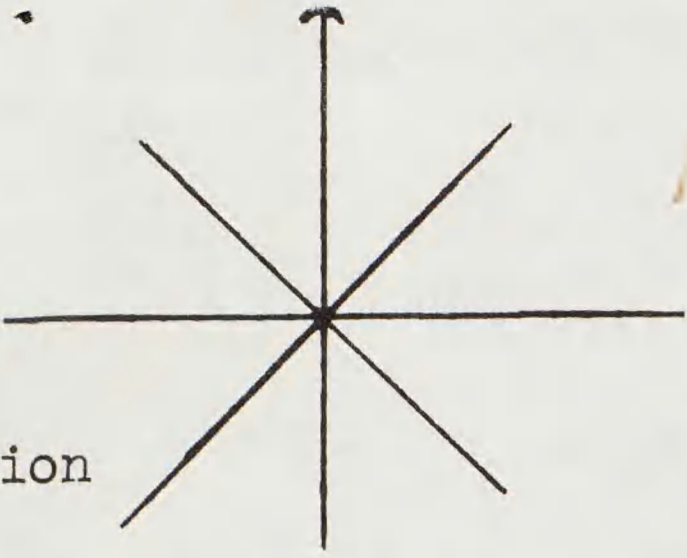
Ship  
Direction
 SMITHSONIAN INSTITUTION  
 DIVISION OF BIRDS  
 AT SEA DAILY LOG - E

 Date April 1  
 Pg. # 1

 SPECIMEN  
 or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
1530					Begin observations
1535	Gulls	5			Following 2 Imm 3 ad
1537	Bonaparts Gull	4	N		
1545	Gulls sp.	50 ± 20			Between ship & Folads to west
1547	BLK	7	on H <sub>2</sub> O		Imm
1548	Bonaparts	1	ce		
1550	Bonaparts	3	ce		
1553	Bonaparts	1	<del>ce</del>		on H <sub>2</sub> O
1555	Common	1	A		
1556	W. Gull	1	ce		Following Imm.
1557	W. Gull	1	ce		on H <sub>2</sub> O
1600	Common	5	N		
1601	BLK	1	ce		Sitting on H <sub>2</sub> O Imm
1603	W Gull.	1	E		
1605	White sp.	3	S		<del>Heavy</del> Heavy Moulting in secondaries Imm
1605	Gull sp	15	ce		on H <sub>2</sub> O 33-43 118-26 Pebb. White
1607	Pilot Whales	8-10	ce		
1618	Common	3	<del>ce</del> E.		Sea cloudy - 33-43 - 118-26
1620	Gull sp	13	W		
1623	"	9	ce		
1628	"	14	ce		on H <sub>2</sub> O
1635	"	5	ce		"
1643	"	9	ce		Circling to E
1650	BLK	1	ce		ad, heavy molt.
52	Jaeger sp	1	W		
54	Bonapart Gull	5	N		
54	Cal Gull	6			following ship
58	Gull sp	9			feeding over jumping porpoise
1700	Jaeger sp.	1	N		porpoise sp 5 <sup>th</sup> light 33-48 118-35
1710	Brant sp	60 ± 5			NW
1711	Alcid sp.	1			on H <sub>2</sub> O
1716	RA	2			on H <sub>2</sub> O
1718	RA	2			" "
1725	Alcid sp	1	ce		
1728	BLK	1	ce		ad



Ship  
Direction

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA DAILY LOG - E

OBSERVERS:

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\_\_\_\_\_  
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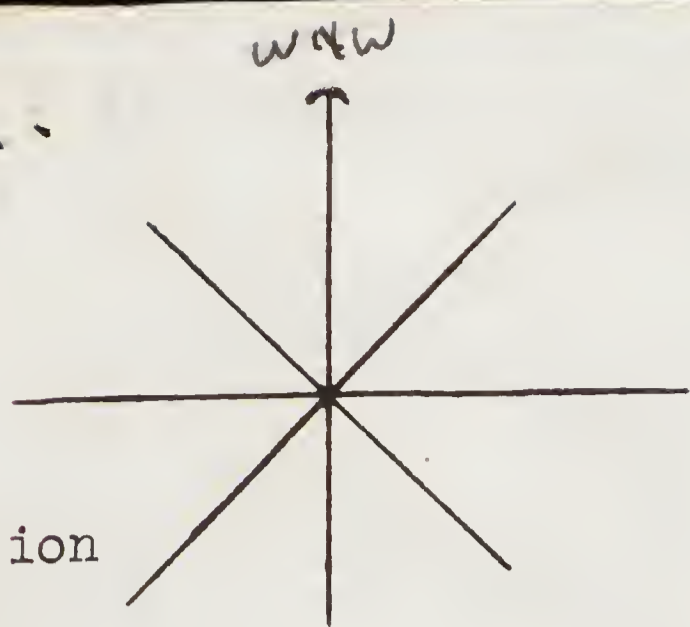
Date April 1  
Pg.# 2

SPECIMEN  
or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
1747	Alcid sp	2	N/		
1748	Brant sp.	80±5	NW		
1748					Baird's porpoise 2
1754	Gull sp.	1	SE		Imm.
1759	Cal Gull				9 following
	Ring-bill	1			ad "
1815					Sunset close observations.

33-53 118-45



Ship  
Direction

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA DAILY LOG - E

OBSERVERS:

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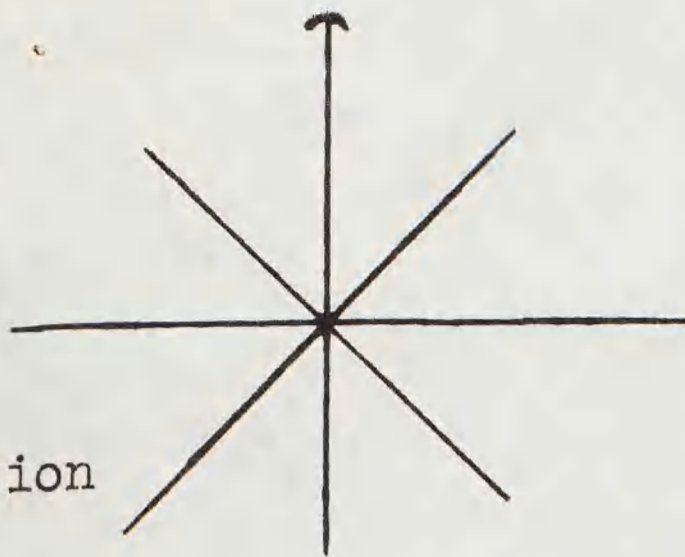
Date 2 April '67  
Pg.# 1

SPECIMEN  
or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0550					begin
56	Sooty/Slender	1	N		
56	H Gull	1			subadult
58	Bird	1			
0602					harbor seal 1 - 34-36 121-02
0604	Gull sp	1	NW		
07	sooty/sldr.	1	☉		
10	H Gull	1	☉		
14	Shear/pet	1	N		light underneath, probably P. cretopus
0625	BFA	1			Following.
0628					SEAL sp. (flippers in air) - 34-38 121-08
0631					" looked like fur "
0643	S/slender	1	N		
45	Pom. Jaeger	1	NW		
50	Fulmar	1	☉		dark
50	bird	1			black, seen by skin
52	Gull. sp.	1			immature
0704	Fulmar	1	☉		dark
0705	Jaeger sp	1			
0710					Fur Seal? 34-41 121-15
0714					seal
0740	P. cretopus	1	☉		34-41 121-16
0805	CAL. GULL	1	☉		
0808	SOOTY/SL	1	☉		
0809	BF albatross	4	☉		2 seals flippers in air 34-42 121-27
0810					
0816					Seals 2 flippers in air 46 28
0844					Seal 1 47 32
0849	GULL SP.	2			2 sitting on log
0857	BFA	7			Following
0858	Shear/Pet	1	N		Distinct
0902	P. cretopus	1	NW		close
0910					Dahl Porpoise 3 ridges Bow wave 34-49 121-36
0921	BLW	2	☉		on H <sub>2</sub> O and
0930					skiff in H <sub>2</sub> O

OBSERVERS:

Ship  
Direction
 SMITHSONIAN INSTITUTION  
 DIVISION OF BIRDS  
 AT SEA DAILY LOG - E

 SPECIMEN *non G.*  
 or

 Date *02 April*  
 Pg.# *2*

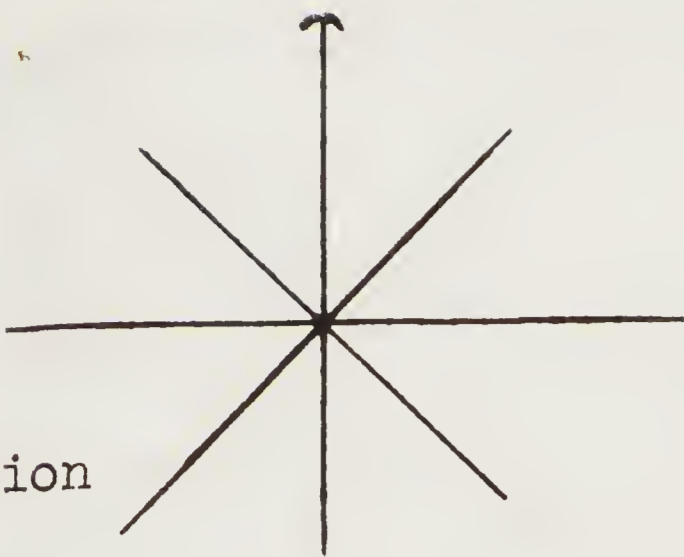
TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0940					skiff still over
0940	<i>R. Phal.</i>	1			on H <sub>2</sub> O
0945	BFA	4			
0954	Fulmar	1	⊙		dark
1000					cal. sea lion (?) carrying fish 1 1/2' long.
1005	Fulmar	1			34-51 121-43
1015	BFA	2			Following another ship.
1030	Laysan A	1	⊙		
1035	BFA	9			BFA
1035	Soot Shear	1	S		
1037	HG	2			ad, imm, coll RH. sitting on log
1037	Sabine Gull	1			ad on H <sub>2</sub> O
1038	Alcid	1			large
1050	H.G.	2			ad.
1100					real sp. 34-53 121 49
1103					" " " "
1105					stop for skiff, bring on board
1115					under way
1135	<i>R. Auct/lat</i>	2			on H <sub>2</sub> O
1155					SEAL SP.
1207	FULMAR	1	⊙		dark 34-54 121-55

OBSERVERS:

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA DAILY LOG - E

Ship  
Direction



SPECIMEN  
or  
#

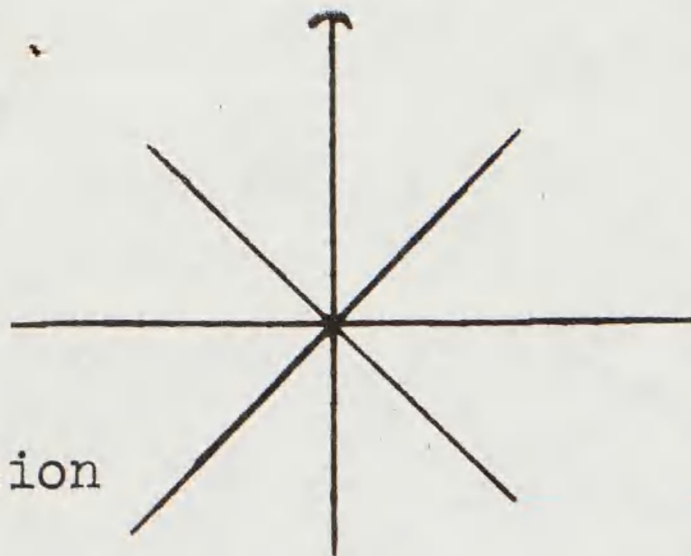
GRID

Date 2 APRIL 1967  
Pg.# 1

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
1215					ENTER GRID
1216	GULL SP.	1	⊙		distant
1221					
1230	BF alb.	1	⊙		seal sp.; flippers out of H <sub>2</sub> O - 34-56 122-01
1234					distant
1236	BF alb.	1			seal sp. — 34-57 122-03
1250					sitting on H <sub>2</sub> O
1256					seal sp.; flip. extended 34-58 122-07
1320					" " 34-59 122-09
1340					- SKIF in H <sub>2</sub> O
1343	shear/Pet	1	⊙		whales ca 15, 10-12 ft. small dorsal, set
1350	Fulmar	1	⊙		wings on body, head very rigidly, 35-00
1350					I think rather blunt in front. very dark 122-20
1358					Darks
1408	shear/Pet	1			sea lion. 35-00
1417	HG	3	⊙		seal - flippers up out of H <sub>2</sub> O 35-00 122-24
1420	Gulls	7	⊙		Following Ad
1430					small possibility BLS or Sabine's
1454	<del>shear/Pet</del> small gull	1	W		seals 2 35-00 122-34 <del>either BLS or Sabine's</del>
1518					
1530	GULL SP.	1	W		seal sp. 35-00 122-45
1600	BF alb.	13			distant + calling
1600	HER. GULL	6			following; 7 sitting on H <sub>2</sub> O which slip & stopped momentarily
1634					following slip - 4/imm.
1640					seal sp. 34-59 122-57
1645	GULL SP.	1	E		seal sp. -58 122-58
1701	HG	5			4 ad, 1 imm
1715	Fulmar	1	⊙		dark
1730	BFA				Total 12 following.
1740	BFA				Total 19 when garbage dumped. 1 had white rump,
1836	HG	10	⊙		all others dark
1834					Following 2 Imm & Ad
					Sunset close observation





Ship  
Direction

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA DAILY LOG - E

OBSERVERS:

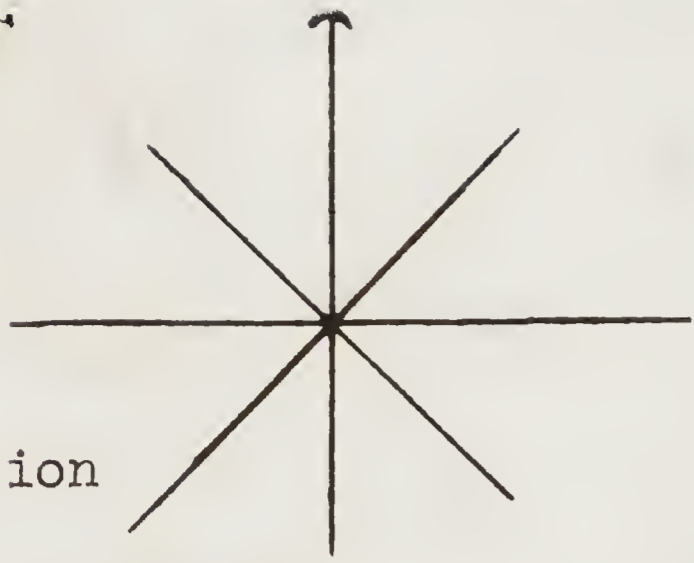
HEIDEN

Date 2 APRIL 1967  
Pg.# 1

SPECIMEN NOCTURNAL GRID  
or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
2200					BEGIN OBS.
2217	GULL SP.	1	0		
2307	GULL SP.	2	0		
2325					5 min. count of squid eyes (to 2330) - 48
2400					CLOSE OBS.



Ship  
Direction

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA DAILY LOG - E

OBSERVERS:

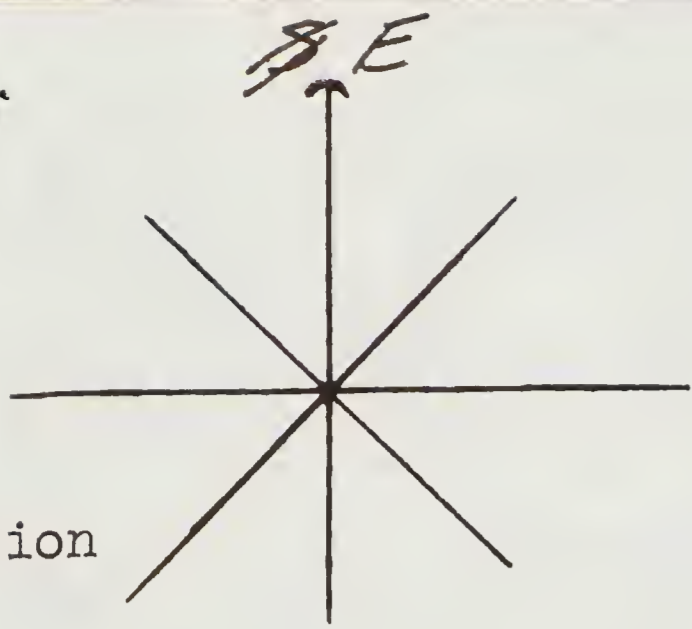
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Date 3 April 67  
Pg.# 1

SPECIMEN  
or

TIME SPECIES # DIR. BAND NO. REMARKS

0605					Survive begin observations
0611	BFA	1	Q		} Following
	Storm Pet	1	e		
0625	R Phalarope	12	ee		
0640	WRSP	1	ee		
0653	New Zealand Shear	1	lee		All white below w pattern on back
0710	R Phalarope	10	ee		
0725	New Zealand	2	N		
0737	Pterodroma	1	N		} sitting on H <sub>2</sub> O
0820	Red Phal.	12			distant
0825	Phal. sp.	2	o		
0845	Small Pterod.	1	IV	}	distant
0847	" "	1	N		
0852	R. Phalarope	16			on H <sub>2</sub> O, none red
0906	WRSP	2	ee		
0906	Bird	1			small, circled 60' above H <sub>2</sub> O for 2 min, then went low.
0910	HG	1			ad. following
0917					seal sp. 34-51 126-12
0920	HG				Now 2 ad.
1004	<del>Storm Pet</del> WRSP	1	ee		
1015					cc to South
1017	WRSP	1	ee		
1110	WRSP	2	o		
1130	WRSP	1	o		
1145-1200					school of Right Whale Dolphin travelling north - <sup>northwest</sup> Minimum estimate 1000, maximum 1500 Photographed.
1200	<del>WRSP</del>	5	N		Following Dolphin.
1200	R. Phalarope	20±2			on H <sub>2</sub> O
1220-25					ca 150 r.w. Dolphin: were feeding when first approached: ca. 125 took off to North, 25 followed ship for 5 min to south, then went north. When surfacing, most of school surfaced at same time. Sizes: Largest 8-10' smallest 5-6'
1230	R. Phal.	19			2 very red. on H <sub>2</sub> O



Ship  
Direction

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA DAILY LOG - E

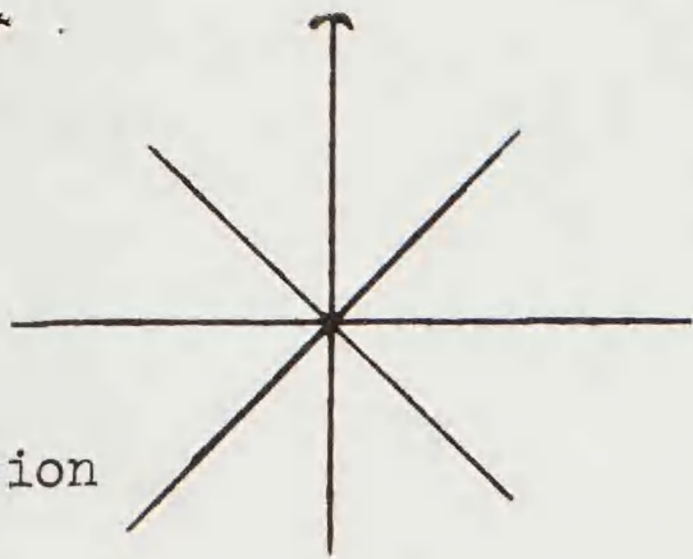
OBSERVERS:

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Date 3 April 1967  
Pg.# 2

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
1237	WRSP	1	S		
<del>1300</del>					skiff over
1315	RED PHAL.	3			collected from skiff by T.J. LEWIS
1330	STORM PET.SP	1	⊙		
1335	WRSP	1	⊙		sighted from skiff by Lewis
1345	HERALD'S PET.	1	N		collected from skiff by Lewis
1350	PTERO.SP	1	⊙		
1350	WRSP	2	⊙		large, sighted from skiff - white below
1424	WRSP	1	⊙		sighted from skiff
1450	"	1	⊙		
1457	WRSP	2	⊙		1 coll (TJL.)
1505	"	1	⊙		" (TJL.)
1510	R. Phal	6	HW		
1512	WRSP	1	⊙		
1516	WRSP	2	⊙		
1519	R. Phal	12			on H <sub>2</sub> O
1530	WRSP	2			
1530					skiff aboard
1535					underway again Point C passed,
1550					CC TO E
1610	Soot. Shear	1	⊙		BFA 2
1634	RED PHAL.	17	⊙		light underwings, chunky body
1645	WRSP	1	⊙		sitting on H <sub>2</sub> O
1650	WRSP	2			
1655	"	1	⊙		
1750	"	1	⊙		
1830	BFA				now 3 following.
1845					close

OBSERVERS:

Ship  
Direction
 SMITHSONIAN INSTITUTION  
 DIVISION OF BIRDS  
 AT SEA DAILY LOG - E

 SPECIMEN *Nocturnal Grid*  
 or

 Date *3 April '67*  
 Pg. # *1*

TIME SPECIES # DIR. BAND NO. REMARKS

2030 open observations

2035 Storm Pet. 2

 2045 R Phal. 1<sup>+</sup>

heard

2100 " 1

2101 " 1

2105 Bird 4

06 " 1

2111 R Phal 1

2115 " 7

2115 WRSP 1

2130 R. Phal 5

2134 WRSP 2

 2144 ~~Bird~~ WRSP 1

2145 R Phal. 1

Enter rain squall

2154 Bird 1

2207 " 1

2230

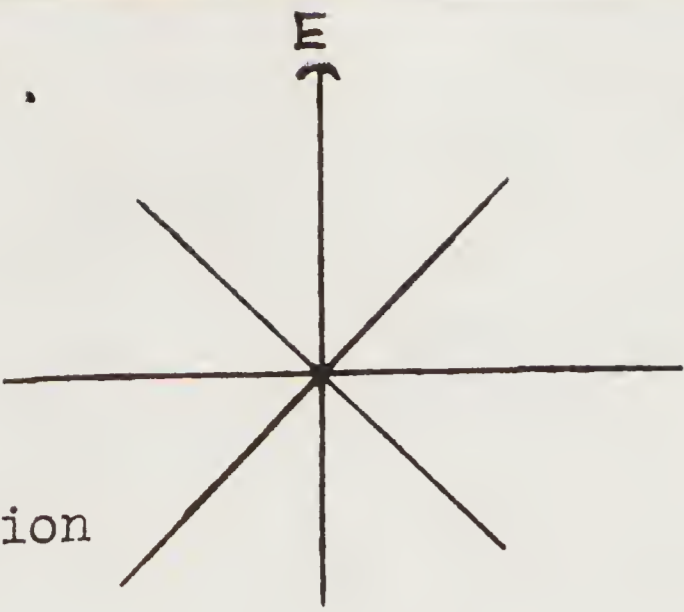
close; still rain

TOTALS: Storm Pet sp. II (2)

WRSP: IIII (4)

Bird: IIII (4)

 R Phal: ~~XXXX~~ IIII (17)



Ship  
Direction

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA DAILY LOG - E

OBSERVERS:

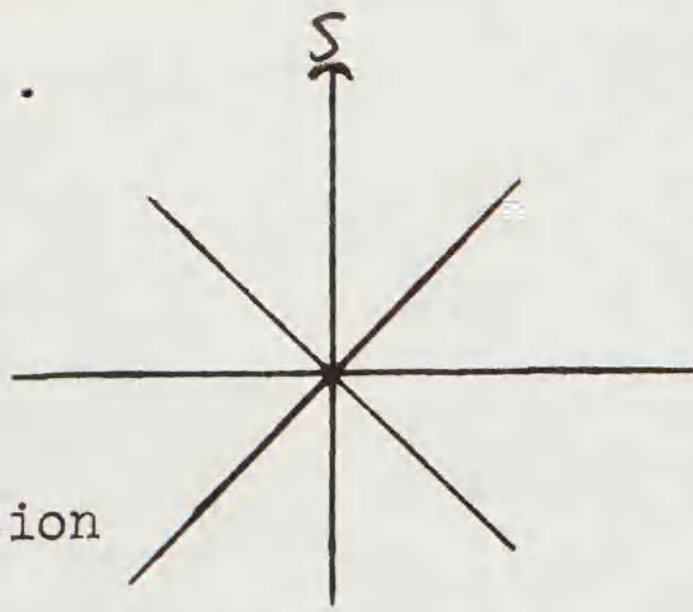
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Date 4 APRIL 1967  
Pg.# 1

SPECIMEN  
or  
DIURNAL GRID

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0600					SUNRISE, BEG. V OBS.
0600	BFA	3	●		following ship
0620	SHEAR/PET	1	●		distant
0630	WRSP	1	○		
0645	HER. GULL	1	○		ad.; following ship
0707	WRSP	1	○		
0720	WRSP	1	○		sitting on log in H <sub>2</sub> O
0745	HER. GULL	1	○		
0800	PHAL. SP.	6	W		distant
0802	WRSP	1	○		
0805	Storm Pet	2	○		
0805					sperm whale 1 34-08 122-51
0807					whale 1 " "
0814	Fulmar	1			sitting on H <sub>2</sub> O
0817	WRSP	1	○		
18	Bird	1	○		
0823	BFA	6			following
0825	WRSP	1	○		
33	R. Phal.	1			on H <sub>2</sub> O
45	WRSP	1	○		
55					cetacean sp. 34-05 122-34
0904	Storm Pet	1	○		
0910					sperm whale 6 - 34-05 122-31
0920	Meadowlark	1	○		coll. TJ Lewis
1004	WRSP	2	○		
1014	WRSP	1	○		
1100					seal sp. (2) 34-03 122-10
1110	HG	2			ad. following
1144					seal sp. 1 34-03 122-07
1120	Gull sp	7			Following another ship
	B/Albat.	2			" "
1130					Land birds (2) on other ship - ca. size of meadowlark.
1305					Seal sp 1 34-02 121-42
1339	RED PHAL.	1			sitting on H <sub>2</sub> O
1349	RED PHAL.	2			sitting on H <sub>2</sub> O
1420	S/sldv	1	N		
1420					change course to S.
1420	HG	4			2 ad, 2 imm following



Ship  
Direction

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA DAILY LOG - E

OBSERVERS:

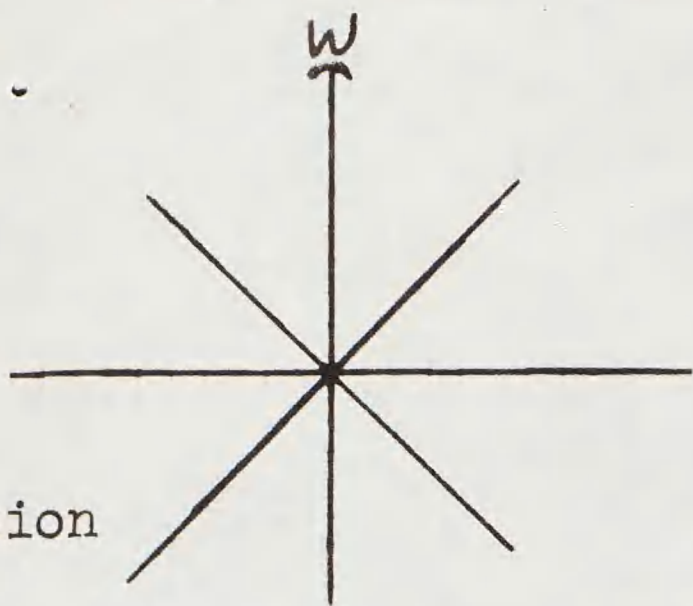
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Date 4 Apr. '67  
Pg. # 2

SPECIMEN  
or

TIME SPECIES # DIR. BAND NO. REMARKS

1421					seal sp (Fur?) 1 .33-59 121-32
1433	sooty/slender	1	S		
1445	Sooty Shear	1	ce		Following ship - white underwings
1454	"	1	N		white underwings
1500	BFA	10	ce		Following ship
1505	Sooty/slender	1	N		
1517	Sooty Shear	1	N		white underwings
1520	B. Phalarope	1	ce		
1547	Shear/Pet	1	NE		seal sp. 1 33-44 North section 121-28 ↑ central section ↓
1600					
1604	sooty/SB	2	N		
1630	PHAL. SP.	1	S		
1633	SOOTY/slender	1	N		
1637	PHAL. SP.	1	S		
1710	soot/slender	1	NE		
1714	GWG	1			imm following
1735					at garbage Dumping: 12 BFA (none w/white rump) 4 HG (2 ad, 2 imm) 1 GWG (imm)
1805	FULMAR	1	O		dark
1830					BFA 14 (none with white rump)
1830					change course to W.
1830					Sunset, close observations



Ship  
Direction

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA DAILY LOG - E

OBSERVERS:

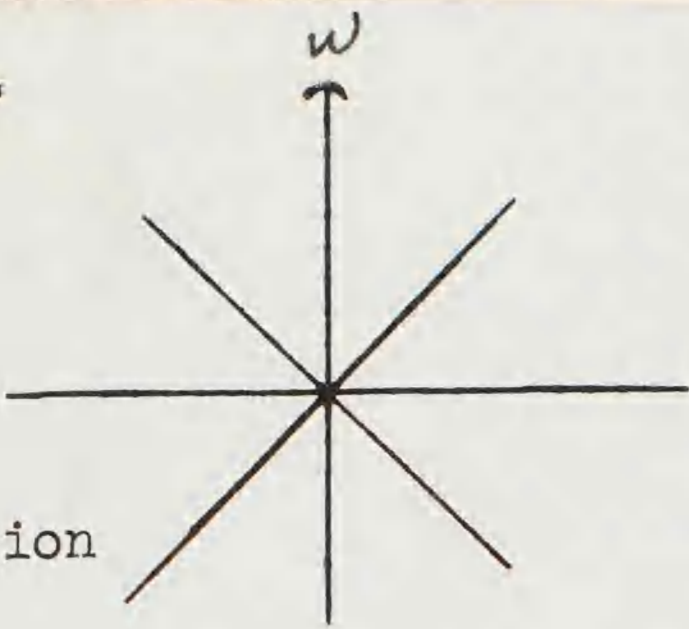
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Date 4 April 1967  
Pg.# 1

SPECIMEN NOCTURNAL Grid  
or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
2130					Begin observations
2230	BFA	1	a		on the 0
2305	R Phalarope	1			Flew beside ship for 5 min.
2330					close observation



Ship  
Direction

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA DAILY LOG - E

OBSERVERS:

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Date 05 April '67  
Pg.# 1

SPECIMEN  
or

TIME SPECIES # DIR. BAND NO. REMARKS

0559					Sunrise, begin observations
0607	WRSP	1			
0630	BFA	1	NW		black dividing line on romp.
0650	<del>HG</del> HG	2			Follow // Ad. following.
0747	BFA	3			following
1224	WRSP	1	⊙		
1310	Red Phal	5			on H <sub>2</sub> O
1428	"	3	IV		
1525	"	2			on H <sub>2</sub> O
1623					Bird's Dolphin - 25 <sup>55</sup> 33-17 125-50
1638	R. Phal	1			well viewed. Rode bow wave 5 min.
1800	BFA	1			on H <sub>2</sub> O.
1847					following ship
1847					2 BFA following ship
					SUNSET; CLOSE OBS.

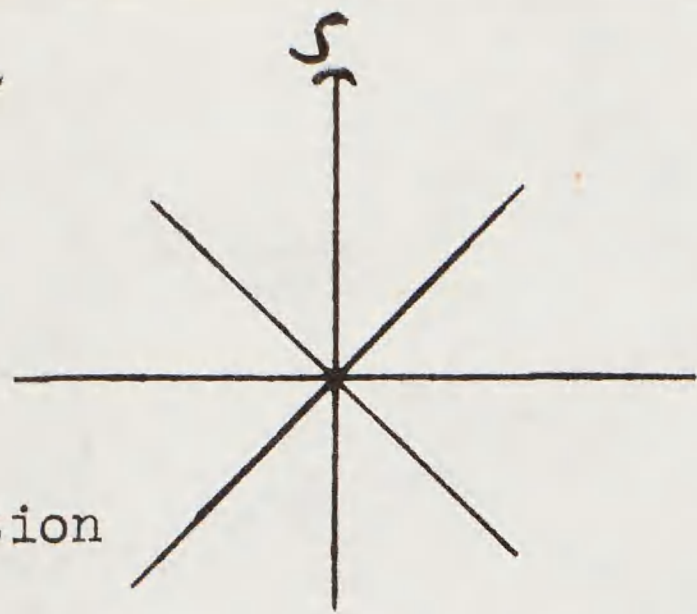
~~5000~~  
5000  
5000

WRSP 2  
RP 11  
BFA 3  
HG 2  

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18





Ship  
Direction

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA DAILY LOG - E

OBSERVERS:

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Date 5 APRIL 1967  
Pg.# 1

SPECIMEN NOCTURNAL GRID  
or

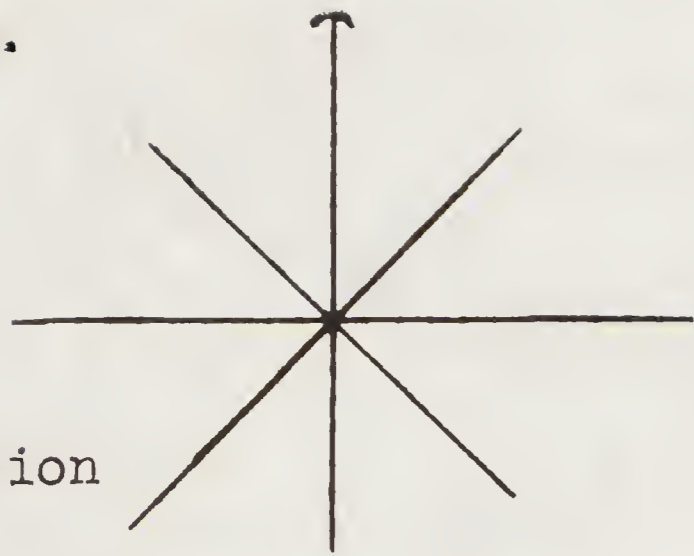
TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
2230					<i>begins obs.</i>
2255	PHAL. SP.	1	0		
2330	PHAL. SP.	1	0		
2347	WRSP	1	0		
0020					5 min. count of squid eyes — 59
0030					obs. obs. INTERMITTENT SQUALLS THROUGHOUT OBS.

OBSERVERS:

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA DAILY LOG - E

Ship  
Direction



Date 6 April 67  
Pg. # 1

SPECIMEN  
or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0603					Sunrise begin observation
0604	WRSP	1	⊙		on H <sub>2</sub> O
	BFA	1	⊙		Following ship
0625	Sooty/Slb	1	N		
0629	"	1	N		In Rain Traveling
0647	P. creatopus	1	⊙		" "
0652	Storm Petrel	1	⊙		" "
0800	" "	1			seen by capt.
0807	WRSP	1			
0814	"	1			in rain squall
0815	Sooty Shear	1	N		"light" underwing
0926					
1010					Stopped for Pickup of Gas drums
1020	Sooty Shear	1	N		under way after Pickup of Gas Drums
1020	Sooty/Slb	1	N		light underwing
1031	WRSP	1	IV		disturb
1049	Storm Pet	1	⊙		
1058	Bird	1	⊙		Seen by crew
1102	BFA	1	⊙		Following ship
1120	"	2			" " ; neither with white rump.
1125	Sooty/sldr.	1	N		light underwing. in rain squall.
1200	WRSP	1	⊙		
1208	SOOTY/Sb	1	N		light underwing
1218	WRSP	1	⊙		
1220	SOOTY/Sb	1	N		light UW
1245	SOOTY/Sb	1	N		" "
1350	R. Phalarope	1	NE		water Phalarope eyes high
1415	BFA	3			Following.
1432	WRSP	2	N		
1447	"	1	N		
cc 1520	REG PHAL.	2			sitting on H <sub>2</sub> O coll. P. Heenan
1525	WRSP	1	⊙		
1530	REG PHAL.	14			sitting on H <sub>2</sub> O
1555	SOOTY/Sb	1	N		dark underwing
1556	PHAL. SP.	3	⊙		disturb
1610	WRSP	1	⊙		
1618	R. Phal	9	⊙		sitting on H <sub>2</sub> O

$$\begin{array}{r} 131 \\ 102 \\ \hline 29 \end{array}$$

$$\begin{array}{r} 275 \\ 173 \\ \hline 102 \end{array}$$

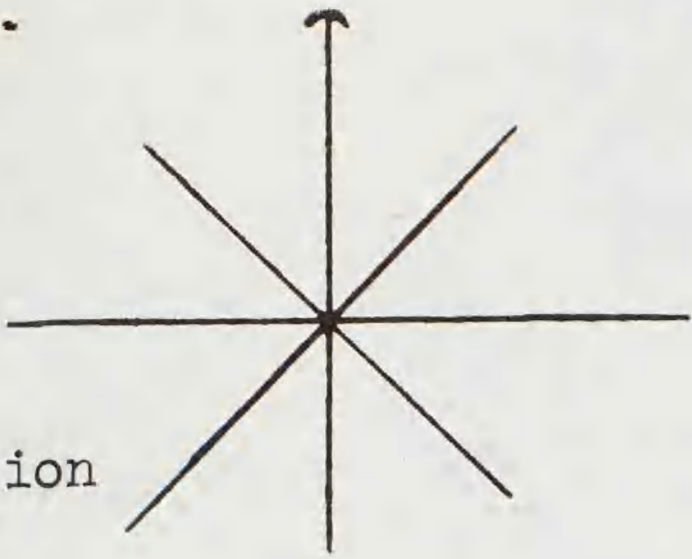
$$\begin{array}{r} 58 \\ 115 \\ \hline 173 \end{array}$$

$$\begin{array}{r} 160 \\ 136 \\ \hline 296 \end{array}$$

OBSERVERS:

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Ship  
Direction



SMITHSONIAN INSTITUTION  
 DIVISION OF BIRDS  
 AT SEA DAILY LOG - E

Date 6 April 67  
 Pg.# 2

SPECIMEN  
or

TIME SPECIES # DIR. BAND NO. REMARKS

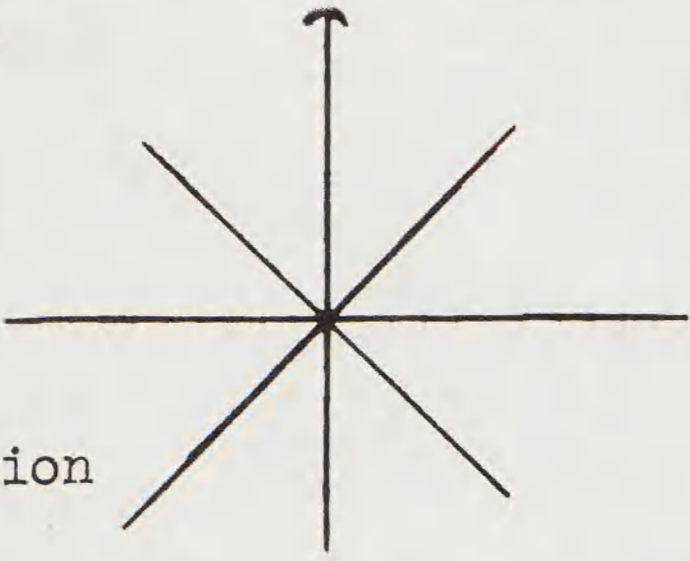
1640	R. Phal	2			1 Mun o'war type Jelly fish
1704	R. Phal	40±5	N		on the 0
1722	R Phal	8	N		
1722					Baird Dolphin: 75 going north (32-29)
1727	s/sldr	1	N		light underwing (122-46)
1727	R. Phal	1	N		
1730	storm Pet	1	SW		
1732	R. Phal	6	N		
1755	WRSP	1	0		
1812	WRSP	1	0		
1830	WRSP	1	0		
1835					3 BFA following ship
1847					SUNSET; obs obs.

SP III  
 WRSP III III III  
 BFA III  
 S/S III I  
 creatopus I  
 RP III 14, 9, 40, 8, 6 (86)  
 Bird I 34  
 120

20744100  
430  
10

2000  
120  
151

86  
129  
44  
15  
158



Ship  
Direction

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA DAILY LOG - E

OBSERVERS:

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\_\_\_\_\_  
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SPECIMEN *Noct. Grid*  
or

Date *6 April '67*  
Pg.# *1*

TIME SPECIES # DIR. BAND NO. REMARKS

2000

*open observations*

2100

*Leach's Pet.*

*1*

*coll. BAH*

2115

*storm Pet seen by capt.*

2135

~~*Bird Storm*~~

*1*

~~*small*~~

2150

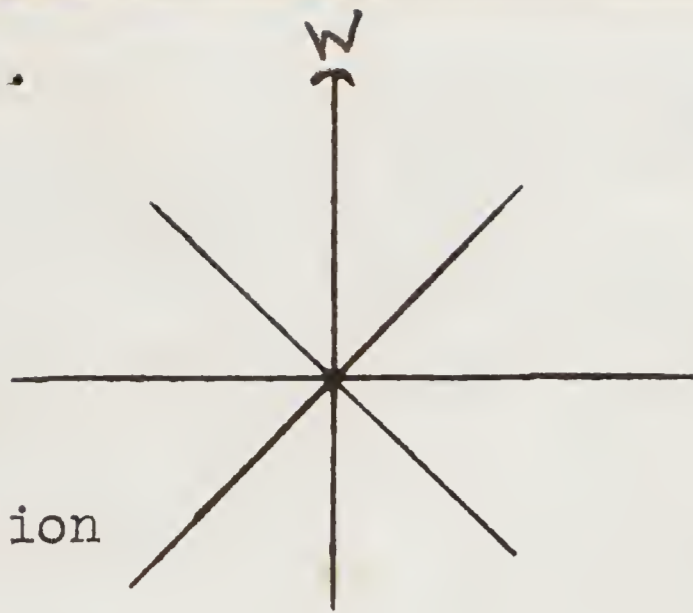
*WRSP*

*1*

*⊙*

2200

*close observations*



Ship  
Direction

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA DAILY LOG - E

OBSERVERS:

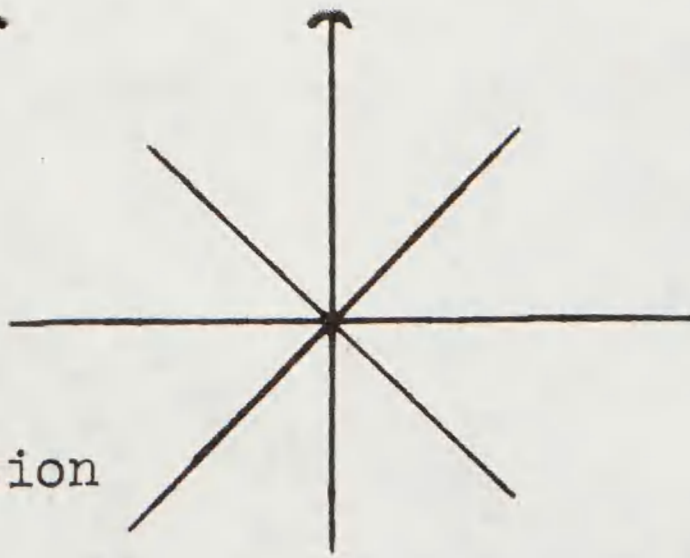
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Date 7 APRIL 1967  
Pg.# 1

SPECIMEN  
or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0544					SUNRISE; BEGIN OBS.
0617	GULL SP.	1			sitting on log
0630					light squall
0640					evd squall
0645	WRSP	1	0		
0647	WRSP	1	0		
0730					Whale sp. (1); leucing; distant (sp.?)
0740					Sperm Whale 6 W
0800					Sperm Whale 5 NW
0840	R. Phal	5	ce		on H <sub>2</sub> O
0844	BFA	1	ce		Following ship
0911	WRSP	1	ce		
0934	HG	1	ce		Following ship Imm
0950	BFA	2	ce		Following ship
1012	PHAL. SP.	1	S		
1031	RED PHAL.	5			on H <sub>2</sub> O
1103	RED PHAL.	1			on H <sub>2</sub> O
1110	"	20 <sup>±5</sup>			on H <sub>2</sub> O, flushed to S.
1204	P. leucoptera	1	ce		close good look, Heavy molt Dark head, light Back
1205	HG	1	ce		Ad following Mottled underwings, light body underneath
1215	Sooty/slb	1	N		
1302	RED PHAL.	1			on H <sub>2</sub> O
1314	" "	6	S		
1329	WRSP	1	0		
1342	WRSP	2	0		
1452	WRSP	3	N		
1542	BFA	3	ce		Following ship
1624	SOOTY/slb	1	N		dark underwing
1650	BFA	5			following.
1702	Soot Shear	1	N		close - white underwing
1704	SOOT/sldr	1	N		
1711	Soot	2	N		distant light underwing
1745	WRSP	1	ce		
1758	sooty/slb	1	ce		
1817	Sooty Shear	1	ce		Following ship light underwing
	WRSP	1	ce		" "
1820	Storm Pet	1	ce		No White Rump - deeply forked tail
1837	BFA	3	ce		Following ship sunset close



Ship  
Direction

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA DAILY LOG - E

OBSERVERS:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

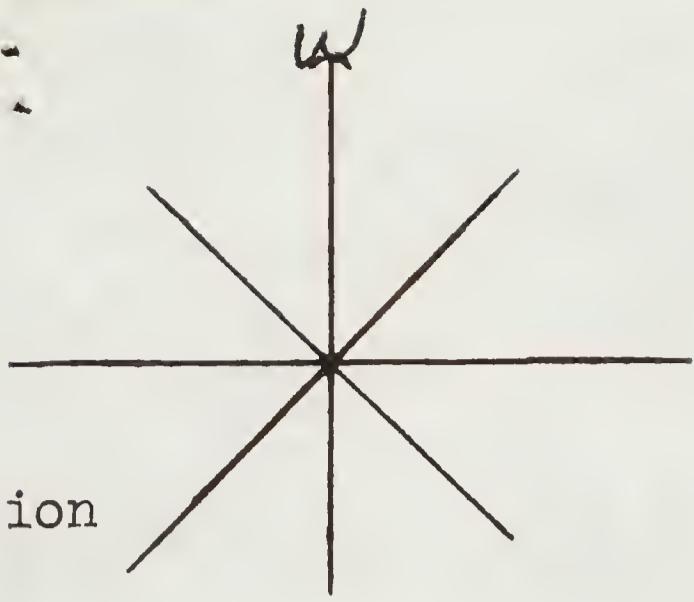
SPECIMEN *Nocturnal Grid*  
or

Date *2 April 67*  
Pg.# *1*

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
2040					Begin observations
2220	<i>B. Phalarope</i>	<i>2</i>			Called as well as observed
2240					Close observations

OBSERVERS:

Ship  
Direction
 SMITHSONIAN INSTITUTION  
 DIVISION OF BIRDS  
 AT SEA DAILY LOG - E

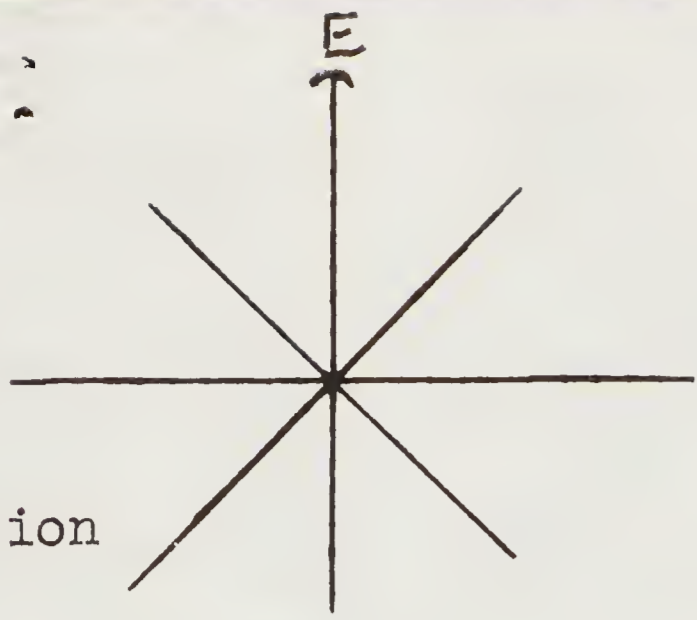
 Date 8 April 67  
 Pg.# 1

 SPECIMEN  
 or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0603					Sunrise
0615					begin observations
0630	BFA	1			Following.
0640	Spot. Shear	1	N		
0704	Storm Pet	1	ccc		
0720	WRSP	1	ccc		exceptionally white rump, no black dividing line seen although quite close. Flight not typical Leach's; possibly a Harcourt's or Wilson's.
0730	WRSP	3	N		all looked like Leach's.
0740	"	1	N		
0744	"	1	N <del>ccc</del>		
0810	WRSP	1	o		
0815	RED PHAL.	1	N		
0910	WRSP	1	ccc		
0930					cc to S
0933	Red Phal	1	NW		
0936	WRSP	2	ccc		
0950	Bird sp	1	ccc		Probably Phalarope
1000	R. Phal	6	NW		
1003	"	1	NW		
1020	WRSP	1	ccc		black dividing line seen
1050	BFA	2			following
1200	Shear/Pet	1	NW		Possibly <i>P. creatopus</i> - flew like wedge-tail but was
1217	"	1			too distant for any color.
1235	Bird	1	W		large white - size of Gull, all white seen by capt.
1310					change course to E
1400					
1432	WRSP	2	o		one medium-sized green fishball
1455	WRSP	1	o		
1511	R. Phalarope	1	ccc		
1600	R. Phal.	1	N		Call T. J. Lewis
1604	"	2	ccc		
1604	WRSP	1	ccc		
1640	Shear/Pet	1	ccc		
1752	WRSP	1	o		
1831	WRSP	1	o		
1847					SUNSET; CLOSE OBS.





Ship  
Direction

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA DAILY LOG - E

OBSERVERS:

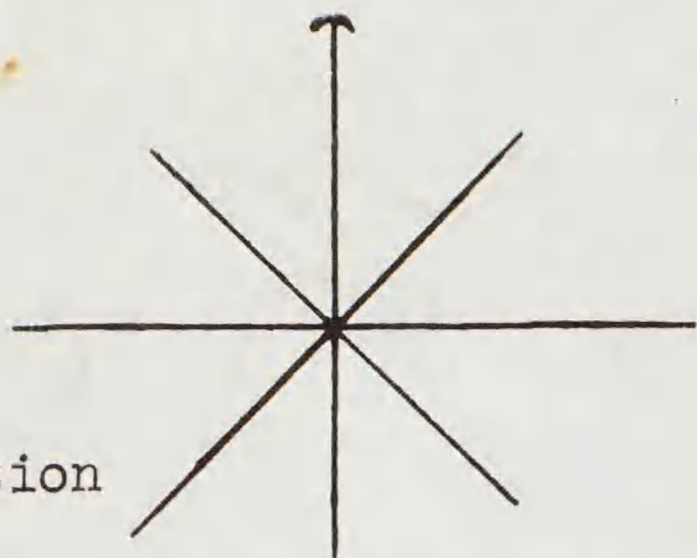
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\_\_\_\_\_

SPECIMEN *Nocturnal GRID*  
or

Date *8 APRIL 1961*  
Pg.# *1*

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
2145					<i>Begin obs.</i>
2247	<i>PHAL. SP.</i>	<i>2</i>	<i>00</i>		
2345					<i>close obs.</i>

*1167/112*



Ship  
Direction

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA DAILY LOG - E

OBSERVERS:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Date 9 April 67  
Pg.# 1

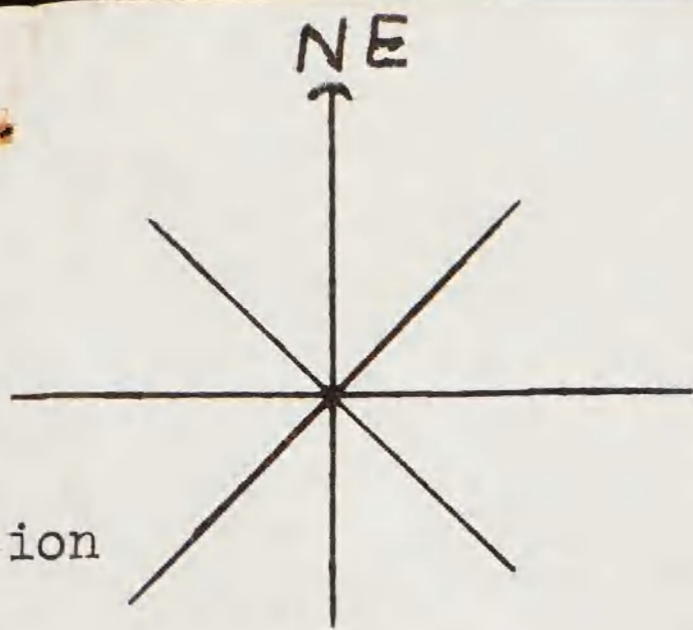
SPECIMEN  
or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0558					Sunrise begin observations
0611	WRSP	1	ce		
0657	WRSP	1	ce		
0714	Red Phal	1	ce		
0759	WRSP	1	E		
0828	Storm Pet	1	ce		
0828	BFA	1			following.
0934	RED PHAL.	2	o		
0946	BFA	1	o		very distant
1005	WRSP	1	ce		
1022	BFA	2	ce		following
1145	RP	1			on H <sub>2</sub> O
1150	WRSP	1	N		
TF 1304	"	9	N		
1305	"	1	N		
1327	R. Phal	1	ce		on H <sub>2</sub> O
1342	WRSP	3	W		
TF 1410	"	7	ce		dispensed by ship
1455	WRSP	6	N		
1456	"	2	N		
1507	"	1	W		
1600	BFA	2			following
1612	BFA	4			following
1635	"	5			"
1639					Baird Dolphin - originally 7, an adult with small young - but 4 ft. present. 3 (still present 1715)
1730	WRSP	2	ce		
1740	BFA	5			following
1745	WRSP	2	ce		
1755	BFA	3			following
1756	WRSP	1	o		
1816	WRSP	1	o		
1827					SUNSET; CLOSE OBS.

12.5

30-51  
121-30



SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA DAILY LOG - E

OBSERVERS:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Date 10 APRIL 1967  
Pg.# 1

SPECIMEN  
or

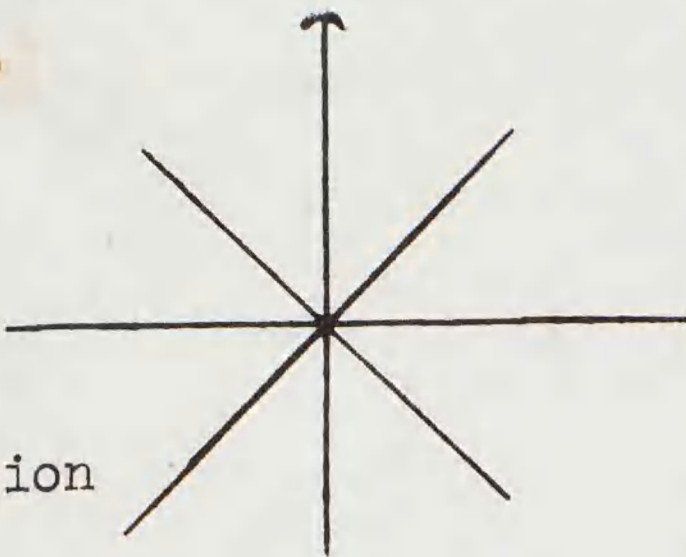
TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0537					SUNRISE
0610					begin obs.
0644	H.GULL	1			Imm.; following
0645	BFA	2			following
0652	GULL SP.	1	N		Imm.; distant
0653	WRSP	1	N		2 Imm. 1 Ad.
0655	H. GULL	3	N		underwing not discernible
0707	SOOTY/SG	1	N		
0713	H. GULL	3	N		2 Imm.; 1 Ad.
0715	GULL SP.	1			Imm.; on H <sub>2</sub> O
0724	RED PHAL.	9			on H <sub>2</sub> O
0731	W GULL	1			Ad.
0732	CORMORANT	1	N		
0740	R. Phal	2	N		
0740	Soot and slender shear	27	N		
	P. cretopus	12	"		
	Jaeger sp	5	"		
	L.T. Jaeger	1	"		
0750	S/SI.	275	N		
	P. Cretopus	27	"		
	Jaeger sp.	5	"		
0750					seal sp ♂ - 32-25-119-20
0751	Alcid sp	2	N		
0800	Soot/sldr	75	N		
0802	"	15	N		
0804	"	15	N		
0807	Jaeger sp.	2	N		
0810	S/SI.	50	N		on Horizon
0810	P. Cretopus	1	N		
0810	Alcid	1	N		large
0820	S/SI.	15	N		
0828	BFA	3			follow
0420	L.T. Jaeg	1	000		

610

11.7

60/40.0  
35-40



Ship  
Direction

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA DAILY LOG - E

OBSERVERS:

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\_\_\_\_\_

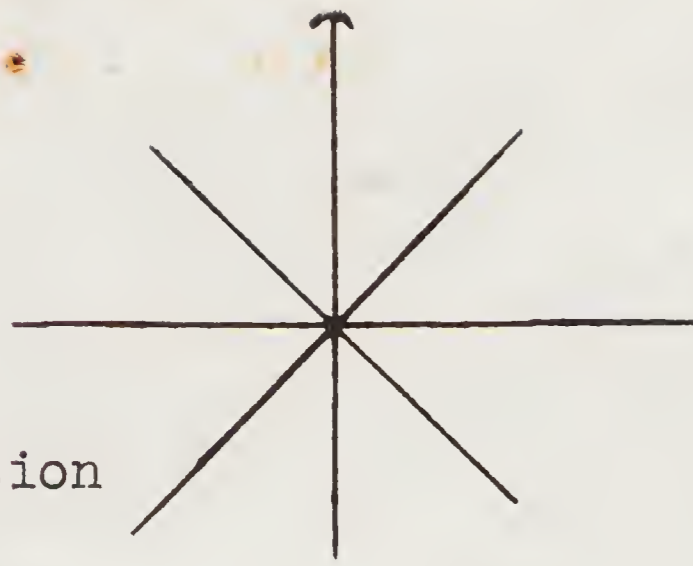
Date 10 Apr 67  
Pg.# 2

SPECIMEN  
or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0825	S/SI	35			on H <sub>2</sub> O
	P. creatopus	2 <sup>+</sup>			
0830	W. Gull	2			imm
	Cal Gull	3			"
0832	soot shear	1			coll T J L
0835	" "	1	N		
0845	S/S/L	7	N		
47	"	3	N		
50	Jaeger sp	1	"		L.T. or Para.
51	S/S/L	5	N		
	Creotopus	1 <del>2</del>	N		
52	S/S/L	8	N		
55					seal sp. (32-30 119-13)
57	S/S/L	2	N		
59	Alcid	1	N		
0900	S/SI	16	N		
0903	S/SI	25 <sup>25</sup>			on H <sub>2</sub> O, flushed N.
0907	P. Phal	1			on H <sub>2</sub> O
0910	S/S/L	6	N		
0914	S/S/L	4	N		
0917	"	1	N		
0920	Alcid	1	a		on H <sub>2</sub> O Probably R. Aucllet - That size
0921	S/S/L	1	a		"
0925	Jaeger sp	2	a		on H <sub>2</sub> O
0926	S/S/L	1	N		
0929	"	2	N		
0932	Alcid	2	a		on H <sub>2</sub> O
0935	"	1	a		"
0937	S/S/L	2	N		
0939	"	1	N		
0945	S/S/L	500 ± 100	a		on H <sub>2</sub> O - 1 Sooty, coll T J L
1010					Skiff over coll R H } 27 Sooty Shear Coll.
1030	Jaeger sp	3	OO		
1050	whale				1 32-41 119-06
1055	S/S	300 ± 50			
1030-55	AKids	25 <sup>25</sup>			seen from skiff - 2 RA Coll
1120	RA	1			on H <sub>2</sub> O

OBSERVERS:

Ship  
Direction
 SMITHSONIAN INSTITUTION  
 DIVISION OF BIRDS  
 AT SEA DAILY LOG - E

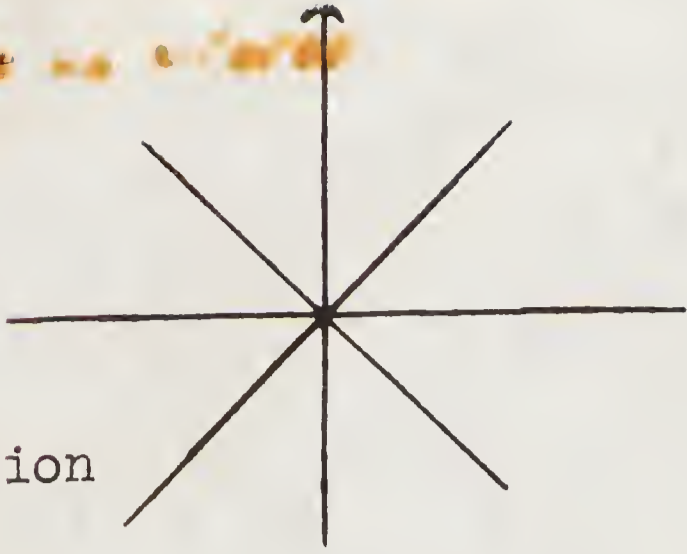
 Date 10 APR '67  
 Pg. # 3

 SPECIMEN  
 or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
1120	P. creotopus	1			on H <sub>2</sub> O, heavy molt.
1148	S/S L	25			"
1152	S/S L	25			"
1155	S/S L	200±50			"
1156	S/S L	150±25			"
1200	R. Audubon	1			on H <sub>2</sub> O
1200	S/S L	3	N		
1202	R. Audubon	1			on H <sub>2</sub> O
1203	P. creotopus	1	N-		
1203	S/S L	2	N		
1208	S/S L	22			on H <sub>2</sub> O
1210	S/S L	29			flushed from H <sub>2</sub> O to N
1211	Ringo	1	NW		
1212	Gull sp.	11			Following 3 Im., 8 Ad
1216	Ringo	2			on H <sub>2</sub> O
1223	BLIS	1	NW		Imm
1225	Ringo	2			on H <sub>2</sub> O
1225					Seal sp. 1 32-48 - 118-59
1230					Seal lion
1232	Rhino	1			on H <sub>2</sub> O
1232	Jay sp	1	W		
1232	S/S L	3	NW		
1237	S/S L	50			
	P. creotopus	1			} all on H <sub>2</sub> O Together
	Gull sp	3			
1239	Jay sp	1	N		1 Ad 2 Im
1243	" "	1	N		Duck
1245	S/S L	3	N		
1247	S/S L	1	NW		
1250	Rhino	1			on H <sub>2</sub> O
1251	S/S L	1	N		
1255					SEAL SP. (1) 32-51 118-57
1258	SOOTY/SO	3	S		
1300	W GULL	1	⊙		Ad.
F 1305	W GULL	5			} SITTING ON H <sub>2</sub> O; observation flushed to N
	GULL SP.	7			
	P. CREOPTAS	9			
	SOOTY/SO	7			
1325	W Gull	3	⊙		Ad.
1345	GULL SP.	2	⊙		Imm. distant
1346					SEAL SP (1)
1350	H. Gull	1			Ad. on H <sub>2</sub> O
1351	BFA	1			on H <sub>2</sub> O, following

OBSERVERS:

Ship  
DirectionSMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA DAILY LOG - ESPECIMEN  
or

DIURNAL NON GRID

Date 10 APRIL 1967  
Pg.# 4

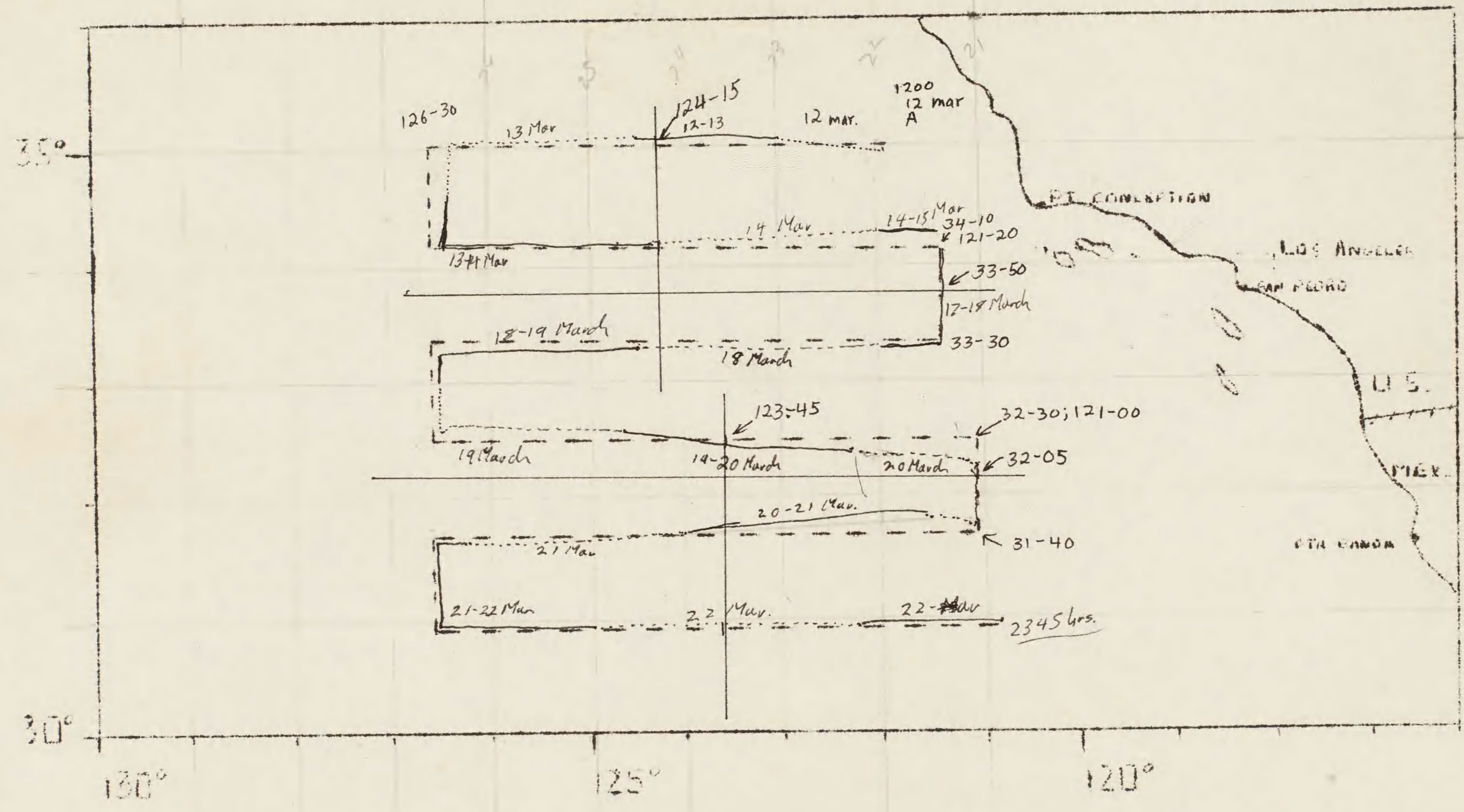
TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
1355	Gull SP.	1	⊙		distant
1357	S/SB	1	W		
1408	<del>          </del> CORMORANT	24	N		conspicuous white flanks
1428	n	1	N		
F 1430	GULL SP.	20±4			on H <sub>2</sub> O; distant
1433	S/SB	1	N		
1442	H GULL	4			3 ad., 1 imm. on H <sub>2</sub> O
1450	CORMORANT	3	N		
1451	ALCID	1			on H <sub>2</sub> O
1452	S/SB	1	N		
1453	H. GULL	2			ad.; on H <sub>2</sub> O
1454	CORMORANT	1	N		
1455	"	2	W		
1503	S/SB	1	N		
1514	S/SB	1	N		
1515	H. GULL	2			Ad. } following
	W. GULL	6			Ad. }
1520	CORM.	1	W		
1556	LOONS	4	N		
1557	XANTHUS	2			on H <sub>2</sub> O
1602					
1608	Xanthus M	1	ce		Bairds Dolphin 2 on Bow 33-13 118-24 on H <sub>2</sub> O
1610	LEONIA	24	W		
1621	Xanthus M	2	ce		2 on H <sub>2</sub> O on H <sub>2</sub> O
1630	Gulls SP	50±10			near shore of Santa Catalina Is
1640	" "	75			on H <sub>2</sub> O off Santa Catalina
1643	Cormorants	2	W		headed toward " "
1647	"	1	W		" " " "
1700	Cal. Gull,	1	⊙		
1701	Gull SP.	233			on H <sub>2</sub> O
1727					common
1740	FIRSTBOSTON	3	W		8-10 <del>          </del> dolphins riding low waves
1741	BON. GULL	1	W		
1750	F. TERN	1	N		33-31-11817
1750	BON. GULL	1	N		
1750					Chalco.

$\Delta = 35^{\circ}$  TO  $33^{\circ}50'$  N  
 $C = 123^{\circ}50'$  TO  $122^{\circ}05'$  W  
 $S = 32^{\circ}05'$  TO  $31^{\circ}05'$

$E = E$  of  $124^{\circ}15'$  W for N  
 $E$  of  $123^{\circ}45'$  W for C  
 EAC #5

SR-  $\frac{91}{13}$   
 $\frac{104}{29 - 57}$   
133

# EASTERN PACIFIC OCEAN



Date 1 APR 67

Ship SHEARWATER (T-AG177)

Cruise No. 177-67-05

Organization \_\_\_\_\_

Recorder \_\_\_\_\_

Sunrise: Time \_\_\_\_\_ Position: Lat. \_\_\_\_\_, Long. \_\_\_\_\_

Sunset: Time 1815 hrs. Position: Lat. ~~48~~ 33-55<sup>N</sup>, Long. 118-48 W

Miles travelled from 0000 hours to sunrise = \_\_\_\_\_

Miles travelled from sunrise to sunset = \_\_\_\_\_ 32 miles

Miles travelled from sunset to 2400 hours = 62 miles =

	TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
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1.	1512 - Depart Long Beach		33°-41.5' N	115°-15' N
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2.

3.

4.

5.

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
------	----------	-----------	-----------	----------	-----------	-----------

0100						
0200						
0300						
0400						
0500						
0600						
0700						
0800						
0900						
1000						
1100						
1200						
1300						
1400						
1500						
1600	33-42.5 N	118-25 W	130°	10 kn	120°	3 FT
1700	33-48 N	118-35.5 W	110	8 kn	110°	4 FT
1800	33-54 N	118-47 W	270	10	110	4 FT
1900	33-57 N	118-58 W	300	7	235	2
2000	34-01 N	119-05 W	300	7	235	2
2100	34-07 N	119-18 W	270	10	270	2
2200	34-09.5 N	119-28 W	270	10	270	2
2300	34-12 N	119-42 W	CALM		CALM	
2400	34-17.5 N	120-01 W	Calm		Calm	

34-15.0 N 119-54 W

1318  
1500

10 knots  
32°



Date 2 APR 1967

Ship SHARWATER (TAC 17)

Cruise No. 177-6705

Organization POBSP

Recorder Alipia bridge

Sunrise: Time 0551 Position: Lat. 34° 36' N, Long. 121° 03' W

Sunset: Time 1834 Position: Lat. 34° 55' N, Long. 123° 08' W

Miles travelled from 0000 hours to sunrise = 59

Miles travelled from sunrise to sunset = 113

Miles travelled from sunset to 2400 hours = 57

	TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
1.	0700	LORAN VISUAL	34° 40' N	121° 13' W
2.	1900	CELESTIAL	34° 55' N	123° 14' W
3.	LORAN INOPERATIVE AFTER 1000 ft.			
4.				
5.				

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
0100	34°-19' N	120°-09' W	295	5	295	3
0200	34°-21' N	120°-20' W	290	8	290	4
0300	34°-23' N	120°-29' W	310	5	310	4
0400	34°-27.5' N	120°-42' W	350	2	350	4
0500	34° 32' N	120° 51' W	280	4	270	2
0600	34° 36' N	121° 03' W	230	4	270	2
0700	34° 40' N	121° 13' W	CALM		CALM	
0800	34° 45' N	121° 25' W	AIRS		CALM	
0900	34° 48' N	121° 35' W	AIRS		CALM	
1000	34° 51' N	121°-43' W	AIRS		CALM	
1100	34°-53' N	121°-49' W	AIRS		CALM	
1200	34° 54' N	121°-56' W	AIRS		CALM	12 FT SWELL
1300	34 59' N	122-10' W	AIRS		CALM	12 FT SWELL
1400	35-00' N	122-24' W	300	5	RIPPLES	12 FT SWELL
1500	35-00' N	122-42' W	AIRS		RIPPLES	10 FT SWELL
1600	35-00' N	122-53' W	AIRS		RIPPLES	10 FT SWELL
1700	34° 58' N	123° 00' W	AIRS		315	2
1800	34° 55' N	123° 07' W	AIRS		315	2
1900	34° 55' N	123° 14' W	035	9	315	2
2000	34° 55' N	123° 26' W	035	9	315	2
2100	34-56' N	123° 38' W	010	10	010	2
2200	34-56' N	123-50' W	010	10	010	2
2300	34-56' N	124-04' W	010	10	010	2
2400	34-56' N	124-16' W	010	10	010	2

10 knots  
32°

1215  
34-56 12157

Date 3 APR

Ship SHEARWATER (FAC 177)

Cruise No. 177-67-05

Organization \_\_\_\_\_

Recorder \_\_\_\_\_

✓ Sunrise: Time 0605 Position: Lat. 34° 50' N, Long. 125° 35' W

Sunset: Time 1846 Position: Lat. 34° 10' N, Long. 125° 41' W

Miles travelled from 0000 hours to sunrise = 59

Miles travelled from sunrise to sunset = 115

Miles travelled from sunset to 2400 hours = 56

	TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
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1.	0530	CELESTIAL	34° 50' N	125° 46' W
----	------	-----------	-----------	------------

2.	Noon By L.A.N.			
----	----------------	--	--	--

3.	* all Position D.R. after 1400 Sun Line.			
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4.				
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5.				
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Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
------	----------	-----------	-----------	----------	-----------	-----------

0100	34° 57' N	124° 28' W	005	8	005	2
0200	34° 57' N	125° 40' W	005	8	005	2
0300						
0400	34° 50' N	125° 06' W	320	10	325	3
0500	34° 48' N	125° 20' W	320	10	325	3
0600	34° 50' N	125° 34' W	320	10	325	3
0700	34° 50' N	125° 47' W	345	15	315	3
0800	34° 50' N	126° 00' W	345	15	315	3
0900	34° 51' N	126° 09' W	330	7	330	3
1000	34° 52' N	126° 21' W	330	7	330	3
1100	34° 41' N	126° 21' W	330	7	330	1-2
1200	34° 32' N	126° 20' W	330	9	330	1-2
1300	34° 22' N	126° 24' W	330	8	320	3
*1400	34° 17' N	126° 24' W	325	8	325	3
1500	34° 13' N	126° 23' W	320	10	320	3
1600	34° 10' N	126° 20' W	320	10	320	3
1700	34° 10' N	126° 07' W	345	10	340	3
1800	34° 10' N	125° 50' W	000	12	000	2
1900	34° 10' N	125° 39' W	000	12	000	2
2000	34° 10' N	125° 28' W	000	12	000	2
2100	34° 09' N	125° 15' W	320	06	325	2
2200	34° 09' N	125° 03' W	325	06	325	2
2300	34° 09' N	124° 49' W	325	06	325	2
2400	34° 09' N	124° 37' W	325	06	325	2

10 knots  
27°

1015 PT Beach

1530 PT Ocean

10 knots  
18°

10 knots  
09°

Date 4 APR

Ship Shearwater (TAG 177)

Cruise No. 177-67-05

Organization \_\_\_\_\_

Recorder \_\_\_\_\_

Sunrise: Time 0600

Position: Lat. 24° 08' N, Long. 123° 18' W

Sunset: Time 1820

Position: Lat. 33° 19' N, Long. 121° 32' W

Miles travelled from 0000 hours to sunrise = 65

3321

Miles travelled from sunrise to sunset = 135

Miles travelled from sunset to 2400 hours = 55

TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
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1. 1200 Fix by LA-N & Sun Line

2. 1830 Star Fix 33-19N-121-31W

3.

4.

5.

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
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0100	34-09 N	124-24 W	330	10	330	2
0200	34-09 N	124-11 W	350	8	350	2
0300	34-09 N	123-57 W	000	8	000	2
0400	34-09 N	123-44 W	015	8	015	2
0500	34-08 N	123-31 W	000	8	000	2
0600	34-08 N	123-15 W	315	12	315	2
0700	34-08 N	123-05 W	315	10	315	2
0800	34-08 N	122-53 W	CALM		315	2
0900	34-05	122-33 W	290	06	290	3
1000	34-04	122-22 W	290	06	290	3
1100	34-03	122-10 W	290	10	280	3
1200	34-02	121-57 W	270	16	270	5
1300	34-02	121-42 W	280	15	280	6
1400	34-02 W	121-34 W	280	16	280	6
1500	33-54	121-28	280	19	280	6
1600	33-44	121-28	280	18	280	6
1700	33-34 N	121-25 W	300	15	280	5
1800	33-23 N	121-25 W	325	18	290	4
1900	33-19 N	121-36 W	325	18	290	4
2000	33-19 N	121-50 W	325	18	290	4
2100	33-19 W	122-03 W	315	16	290	5
2200	33-19 N	122-15 W	315	14	290	5
2300	33-19 N	122-25 W	315	15	290	5
2400	33-19 W	122-37 W	315	15	290	5

10 knots  
09°

Work Back  
from 1200 fix

10 knots  
18°

Date 5 APR

Ship SHEARWATER (FAG 177)

Cruise No. 177-67-05

Organization \_\_\_\_\_

Recorder \_\_\_\_\_

Sunrise: Time 0559

Position: Lat. 33°55'N, Long. 123°44'W

33°14

Sunset: Time 1847

Position: Lat. 33°17'N, Long. 126°20'W

RLB

Miles travelled from 0000 hours to sunrise = 56

Miles travelled from sunrise to sunset = 130

Miles travelled from sunset to 2400 hours = 58 miles

	TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
1.	0530	CELESTIAL	33°55'N	123° 38'W
2.	Hourly Sun Lines.			
3.	NOON R. FIX 1200 SUNLINE & 1223 LAN.			
4.				
5.				

Hourly Positions:

Time      Latitude      Longitude      Wind Dir.      Wind Sp.      Wave Dir.      Wave Hgt.

0100	33-18 N	122-49 W	320	10	320	5
0200	33-18 N	123-03 W	330	8	330	4
0300	33-19 N	123-14 W	280	10	280	4
0400	33-19 N	123-26 W	235	10	235	5
0500	33° 15' N	123-33' W	300	14	290	4
0600	33° 15' N	123° 44' W	300	14	290	4
0700	33° 15' N	123 56 W	300	14	290	4
0800	33° 15' N	124 08 W	320	10	280	3
0900	33-15 N	124-21 W	270	10	290	3
1000	33-15 N	124-36 W	270	10	290	3
1100	33-16 N	124-48 W	270	10	290	3
1200	33-16 N	125-00 W	270	10	290	3
1300	33-16 N	125-12 W	270	12	290	3
1400	33-17	125-23 W	270	12	290	3
1500	33-17	125-39 W	270	12	290	3
1600	33-17	125-46 W	270	12	290	3
1700	33-17 N	125-58 W	270	12	290	4
1800	33-17 N	126-12 W	270	12	290	4
1900	33-17 N	126-21 W	270	12	290	4
2000	33-09 N	126-28 W	295	7	240	2
2100	32-57 N	126-38 W	255	12	255	4
2200	32-46 N	126-28 W	255	18	255	4
2300	32-33 N	126-28 W	225	17	225	4
2400	32-30 N	126-16 W	225	17	225	4

10 km. 2  
27°

1915 at PT FIRE  
2315 at PT CINCO

Date 6 APR 67

Ship SHEARWATER (FAG177)

Cruise No. 177-67-05

Organization \_\_\_\_\_

Recorder \_\_\_\_\_

Sunrise: Time 0603

Position: Lat. 32° 30' N, Long. 124° 58' W SF

95 - Sunset: Time 1834

Position: Lat. 32° 27' N, Long. 122° 33' W

Miles travelled from 0000 hours to sunrise = 55

Miles travelled from sunrise to sunset = 132

Miles travelled from sunset to 2400 hours = 59

TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
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1. Hourly sun lines

2. L.A.M.

3. 1900      CESTIAL      32° 27' N      122° 33' W ✓

4.

5.

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
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0100	32-30 N	126°-03 W	230	8 Kn	280	5
0200	32-30 N	125°-49 W	235	8 Kn	290	5
0300	32-30 N	125°-36 W	230	6 Kn	270	5
0400	32-30 N	125°-24 W	230	8 Kn	270	5
0500	32-30 N	125°-10 W	235	10	250	4
0600	32-30 N	124°-58 W	250	20	235	4
0700	32-30 N	124°-44 W	250	20	235	4
0800	32-30 N	124°-31 W	250	15	250	3
0900	32-33 N	124°-17 W	250	16	250	3
1000	32-33 N	124°-02 W	250	15	250	3
1100	32-33 N	124°-00 W	250	15	250	3
1200	32-33 N	123°-51 W	265	14	265	4
1300	32-33 N	123°-37 W	265	12	265	4
1400	32-32 N	123°-26 W	250	10	250	4
1500	32-32 N	123°-15 W	250	10	250	4
1600	32-32 N	123°-02 W	250	15	250	4
1700	32-30 N	122°-49 W	240	12	240	3
1800	32-28 N	122°-40 W	230	10	240	3
1900	32-27 N	122°-29 W	230	10	240	3
2000	32-27 N	122°-17 W	230	10	240	3
2100	32-27 N	122°-02 W	225	17	245	4
2200	32-27 N	121°-42 W	225	17	225	4
2300	32-27 N	121°-34 W	225	17	225	4
2400	32-27 N	121°-22 W	225	17	225	4

10 knots  
090

Date 7 APR 1967Ship SWEARWATER (TAG 177)Cruise No. 177-67-05Organization P.O.B.S.P.Recorder Ship's bridgeSunrise: Time 0544Position: Lat. 31° 40' N, Long. 121° 12' WSunset: Time 1837Position: Lat. 31° 40' N, Long. 123° 38' WMiles travelled from 0000 hours to sunrise = 66Miles travelled from sunrise to sunset = 126Miles travelled from sunset to 2400 hours = 63

	TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
1.	0530	CELESTIAL	31° 40' N	121° 18' W
2.	LAN & 1100-1300 R FIX		31° 42' N	122° 23' W
3.	1900	CESTIAL	31° 40' N	123° 41' W
4.				
5.				

## Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
0100	32-28 N	121-10 W	235	14	235	5
0200	32-25 N	121-09 W	235	14	235	5
0300						
0400	31-55 N	121-12 W	250	15	250	5
0500	31-45 N	121-15 W	270	15	270	5
0600	31-40 N	121-18 W	310	10	290	4
0700	31-40 N	121-31 W	335	12	290	4
0800	31-40 N	121-42 W	310	10	290	4
0900	31-41 N	121-44 W	310	12	290	5
1000	31-41 N	121-55 W	310	15	290	6
1100	31-41 N	122-12 W	310	15	290	6
1200	31-42 N	122-23 W	310	15	290	6
1300	31-42 N	122-35 W	320	18	310	8
1400	31-42 N	122-43 W	340	20	320	8
1500	31-42 N	122-57 W	340	20	320	8
1600	31-42 N	123-05 W	340	18	320	8
1700	31-41 N	123-14 W	340	18	340	6
1800	31-41 N	123-27 W	350	18	340	6
1900	31-40 N	123-41 W	350	16	340	6
2000	31-40 N	123-53 W	000	14	340	6
2100	31-40 N	124-04 W	008	14	360	6
2200	31-40 N	124-16 W	008	14	360	6
2300	31-40 N	124-28 W	008	14	360	6
2400	31-40 N	124-40 W	008	14	360	6

10 knots  
27°

Date 8 APR 67

Ship SHEARWATER (TAG 177)

Cruise No. 177-67-05

Organization \_\_\_\_\_

Recorder \_\_\_\_\_

Sunrise: Time 0603

Position: Lat. 31° 40' N

Long. 125° 43' W (44)

Sunset: Time 1847

Position: Lat. 31-07' N

Long. 125° 52' W

Miles travelled from 0000 hours to sunrise = 65

Miles travelled from sunrise to sunset = 142

Miles travelled from sunset to 2400 hours = 55

TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
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1. STAR 0600

2. HOURLY SUN LINE

3. L.A.N.

4. 1900 CELESTIAL 31° 10' N 125° 52' W

5.

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
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0100	31-40 N	124-51 W	005	12	360	6
0200	31-40 N	125-03 W	010	10	360	6
0300	31-40 N	125-15 W	005	10	360	6
0400	31-40 N	125-27 W	005	10	360	6
0500	31-40' N	125-33' W	015	12	350	3
0600	31-40' N	125-42' W	025	15	350	3
0700	31-40' N	125-55' W	035	15	350	3
0800	31-40' N	126-07' W	045	15	350	3
0900	31-40 N	126-20 W	045	12	045	4
1000	31-25 N	126-30 W	045	12	045	4
1100	31-14 N	126-30 W	045	11	045	4
1200	31-01 N	126-30 W	045	11	045	4
1300	30-53 N	126-30 W	030	10	030	4
1400	30-50 N	126-17 W	025	10	025	4
1500	30-50 N	126-07 W	020	10	020	4
1600	30-50 N	125-51 W	025	10	025	4
1700	30-57 N	125-48 W	025	10	030	4
1800	31-04 N	125-33 W	020	12	030	4
1900	31-10 N	125-53 W	020	12	030	4
2000	31-10 N	125-40 W	015	14	030	4
2100	31-08 N	125-27 W	015	14	350	6
2200	31-07 N	125-15 W	015	14	350	6
2300	31-05 N	125-02 W	015	14	350	6
2400	31-05 N	124-50 W	015	14	350	6

11 knots  
27°

0930 ARRIVED  
PT LARCH C/C  
TO 180°  
10 knots  
1312 ARR PT LARCH  
C/C TO 090

Date 9 APR 67

Ship SHEARWATER (FAG177)

Cruise No. 177-67-05

Organization \_\_\_\_\_

Recorder \_\_\_\_\_

Sunrise: Time 0558

Position: Lat. 30°54'N, Long. 123°38'W

Sunset: Time 1827

Position: Lat. 30°50'N, Long. 121-05W

Miles travelled from 0000 hours to sunrise = 65

Miles travelled from sunrise to sunset = 133

Miles travelled from sunset to 2400 hours = \_\_\_\_\_

TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
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1.

2. HOURLY SUN LINES

3. 1200 - By C.I.A.W.

4. 1830      CELESTIAL      30°50'N      121°07'W

5.

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
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0100	31-02 N	124-42 W	015	12	350	6
0200	31-01 N	124-28 W	010	10	350	6
0300	31-00 N	124-11 W	015	14	350	6
0400	30-58 N	124-03 W	025	15	350	6
0500	30-55 N	123-51 W	015	15	355	4
0600	30-54 N	123-38 W	000	14	000	4
0700	30-54 N	123-26 W	000	14	000	4
0800	30-53 N	123-15 W	000	14	000	4
0900	30-53 N	123-01 W	355	14	350	8
1000	30-53 N	122-50 W	340	12	330	8
1100	30-52 N	122-37 W	340	11	330	8
1200	30-51 N	122-24 W	340	11	330	8
1300	30-51 N	122-12 W	335	11	340	8
1400	30-51 N	122-00 W	330	11	350	8
1500	30-51 N	121-49 W	330	10	350	8
1600	30-51 N	121-36 W	330	12	350	8
1700	30-51 N	121-25 W	350	16	010	6
1800	30-51 N	121-14 W	355	17	010	6
1900	30-51 N	121-07 W	335	13	010	6
2000	30-58 N	120-52 W	335	13	010	6
2100	31-05 N	120-45 W	325	15	010	6
2200	31-13 N	120-38 W	325	15	010	6
2300	31-21 N	120-30 W	325	15	010	6
2400	31-29 N	120-21 W	325	15	010	6

10 knots  
10°

09°



Date 10 APR 67

Ship SHEARWATER (TAG 177)

Cruise No. 177-6705

Organization \_\_\_\_\_

Recorder \_\_\_\_\_

Sunrise: Time 0537

Position: Lat. 32°12'N Long. 119°39'W

Sunset: Time \_\_\_\_\_

Position: Lat. \_\_\_\_\_, Long. \_\_\_\_\_

Miles travelled from 0000 hours to sunrise = 53

Miles travelled from sunrise to sunset = \_\_\_\_\_

Miles travelled from sunset to 2400 hours = \_\_\_\_\_

TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
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- 1.
- 2.
- 3.
- 4.
- 5.

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
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0100	31°35'N	120°-14W	330	15	010	10
0200	31°-42'N	120°-08W	330	12	010	12
0300	31°-48'N	119°-59W	330	12	010	10
0400	31°-56'N	119°-51W	330	15	010	10
0500	32° 03'N	119° 43'W	320	16	335	4
0600	32° 11'N	119° 35'W	320	16	335	4
0700	32° 18'N	119-25W	300	9	335	4
0800	32° 26'N	119° 19'W	320	16	335	4
0900	32° 30'N	119° 15'W	300	10	330	3
1000	32° 35'N	119° 06'W	300	10	330	2
1100	32° 45'N	119° 06'W	320	5	330	2
1200	32-45 N	119-00 W	320	6	330	4
1300	32-51 N	119-57 W	320	6	330	4
1400	32-00 N	118-44 W	320	6	330	4
1500	33-07 N	118-35 W	320	6	330	4
1600	33-13 N	118-24 W	320	6	330	4
1700	33-20 N	118-17 W				
1800	33-36 N	118-17 W				
1900						
2000						
2100						
2200						
2300						
2400						

10 knots  
05