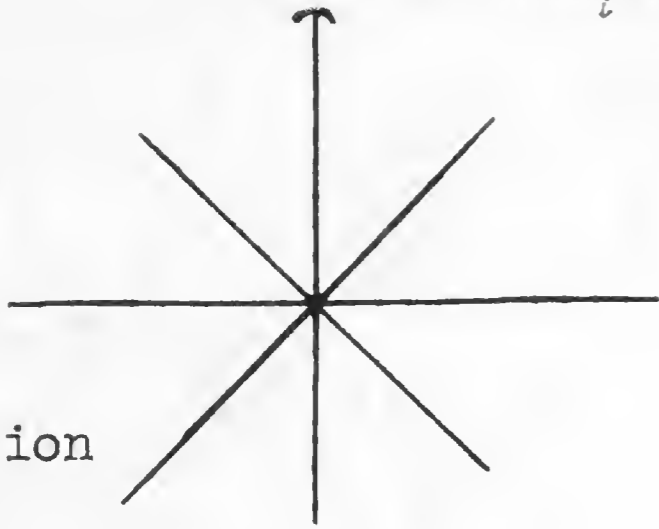


185 - changed to 162 at 1400



Ship Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

T. J. Lewis, R. L. Pyle

Date Oct 16, 1967

Pg. # 1

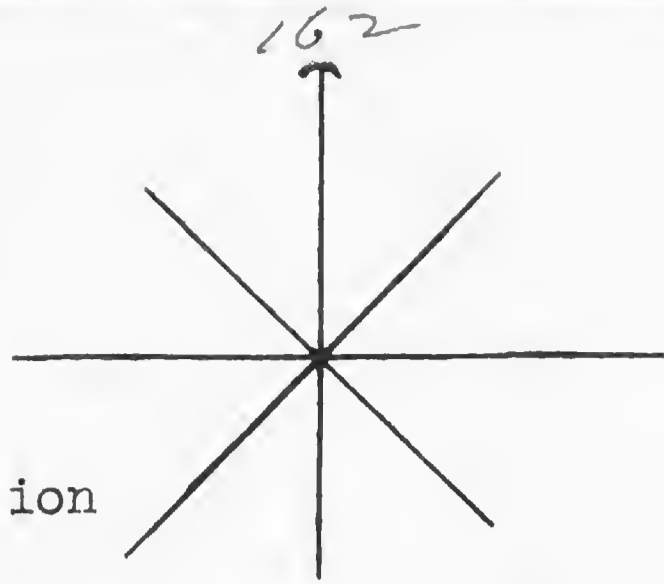
Non-grid

SPECIMEN
or
DIR. BAND NO. REMARKS

TIME SPECIES #

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
1240					open obs
1240	W. Gull	2	lee		} around ship
	Calif Gull	6	lee		
	Gull sp	4	lee		
1242	Cormorant sp	2			sitting
1244	Calif Gull	2			sitting
	Gull sp	5	lee		
1245	Pelagic Cormor.	1	N		Small, thin bill, dark glossy, thin neck, small head
1248	W. Gull	1	S		Lots of large brown jellyfish with streamers up to 5'
1250	Gull sp	2	lee		
58	W. Gull	15	lee		
59	Phal sp	1	W		on H ₂ O
1301	Phal sp	1			heard calling
02	"	4	lee		on H ₂ O flushed w
03	Cassins Auklet	1	lee		diving
04	Phal sp	1	lee		on H ₂ O
05	Red Phalarope	1	lee		" winter plumage
06	Gull sp	16	lee		on H ₂ O
08	Phal sp.	1	lee		" "
08	Herring Gull	1	lee		
10	Audubon's Warbler	1	lee		landed on ship's Imm
10	W. Gull	2	S		Imm, Ad
14	"	1	N		Imm
20	Ad. Murre	1	lee		on H ₂ O
21	Gull sp	1	lee		SA Ad
22	Small Alcid?	1	lee		on H ₂ O
27	Sooty Shearwater	4	lee		on H ₂ O
29	New Zealand	1	lee		on H ₂ O
30	"	1	lee		
34	Small Alcid	1	lee		
38	West. Meadowlark	1	lee		alone
39	Sooty Shear	1	W		on deck for two mins. - collected TOL
43	Sooty Shear	1	W		
46	Sooty Shear	1	W		
47	Murre	1			on water
49	Cassia Auklet	2			on water
50	small alcid	1			on water - dove - Cassia Auklet or next similar form
51	West. Gull	1	W		imm - species reliability 2
52	Pelican	11	W		
53	Gull sp	6	lee		distant
55	Calif. Gull	1	lee		
56	" "	5	lee		Ad, 1 imm
56	Gull sp	1	lee		
58	Small Alcid	4	lee		took off from water - 2 pair
1400					course changed to 162
05	Mourning Dove	1	lee		circled ship + left
05	Gull sp	5	lee		
07	W Gull	1	lee		on H ₂ O Imm

W Gull - 8
Calif Gull - 29
Gull sp - 40
Cormorant - 2
Pelagic - 1
Phal sp - 8
Audubon - 3
Herring - 1
Murre - 1
Sooty - 5
Small Alcid - 7
SS - 7
MDS - 2
Murre - 1
B. P. - 11
M.D. - 1



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

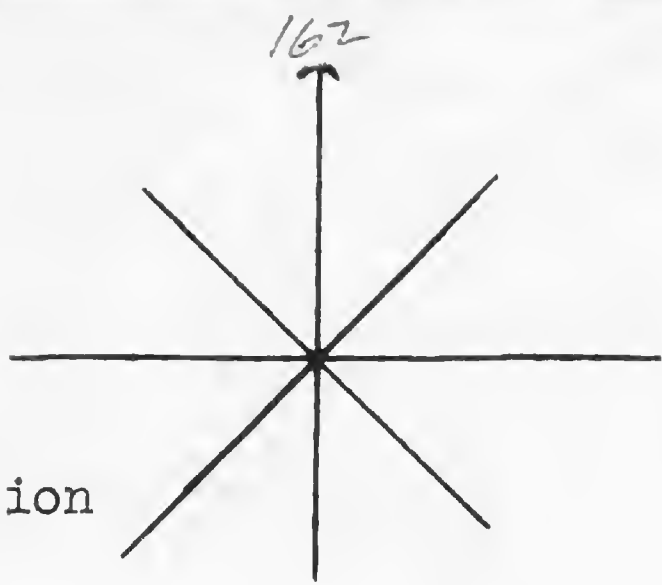
OBSERVERS:

Date 16 Oct 67
Pg.# 2

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
1409	W. Gull	1	W		Imm
10	Cal Murre	1	W		on water
	Cassins Auckl	1	W		on water
	Shearwater sp.	1	W		W
	Gull sp	2	W		
11	W Gull	1	W		
12	N. Phul.	1	W		
14	Sooty Gull	3	W		on H ₂ O called
19	Shearwater sp	2	W		on H ₂ O
20	Gull sp	1	W		on H ₂ O Imm
23	Alcid sp	1	SE		
24	" "	3	W		
25	Gull sp	1	W		on H ₂ O
26	Sooty shear	1	W		S Ad
28	Small Alcid	2	W		
28	Sooty shear	1	W		on water
29	Small Alcid	4	W		
RF 32	Pink-footed	28	W		on H ₂ O
	New Zealand	2	W		on H ₂ O } together
33	Gull sp	6	W		"
38	Alcid small	1	W		
39	Gull sp	2	W		on H ₂ O
54	Gull sp	3	SW		
55	Bonaparte Gull	2	S		
57	Alcid small	3	W		on H ₂ O
58	R Phul	2	W		3 Together on H ₂ O Non Breeding Plunge
	N Phul	3	W		
	Phul sp	1	W		
M 1504	Seal sp		W		on H ₂ O
FF 1504	Gull sp	23	W		
07	New Zealand	1	W		Feeding on seal sp - different section from other 1504 sighting
08	Phul. sp	1	W		
11	Mediterranean Auckl	2	W		called
11	Small Alcid	3	W		on H ₂ O probably R. A.
11	Shearwater?	2	W		on water
13	N. Phul	3	W		
14	W. Gull	1	W		on H ₂ O Non Breeding Plunge
15	Fulmar	1	W		Imm
15	Small Alcid	1	W		on H ₂ O Dive
15	N Phul	2	W		Imm
16	Gull sp	2	SW		Non Breeding Plunge
M 18	Cal. Sea Lion	①			
M 19	Gull sp	3	W		2 imm, 1 ad
M 20	Seal/sealion	②			
M 22					propos 3 small - small don't, did not come out of H ₂ O
M 24	Gull sp	1	W		
M 25	Shearwater	1	W		probably Pink-footed or New Zealand (2 sections)
M 26	W Gull	1	W		Imm



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Date 16 Oct 67
Pg.# 3

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

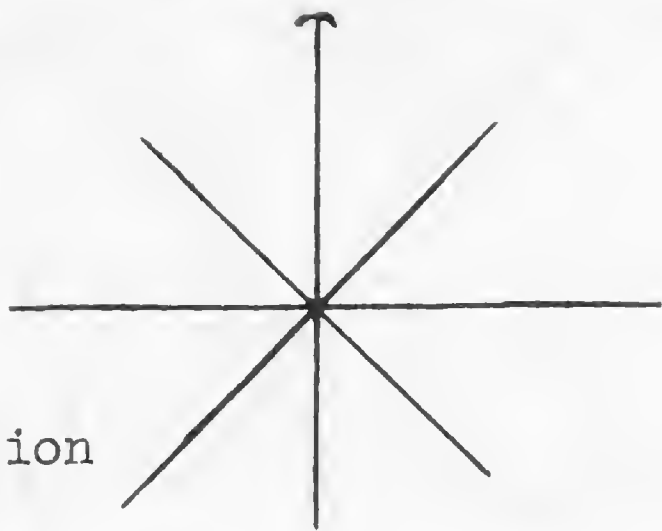
TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
1528	St. Pet SP	1	SW		
29	Cal. Gull	1	ce		Ad
29	Gull SP	1	1NW		
30	Cal. Gull	1	SW		Ad
32					cal sealions (2)
33	Submer Gull	4	ce		
35	Cal Gulls	2	ce		on H ₂ O flushed to South Non Breeding Plumage
	Gull SP	3	ce		Ad
37					cal sealions (2)
38	Phalarope sp.	6	ce		on H ₂ O
39					
41	Small Alcids	2	E		Whale - probably Gray -
44					(cal Sealions 1)
44	Cal Gull	11	ce		Following 5 Ad 5 Im 1 sub
	W Gull	2	ce		
50	Cal. Gull	1	ce		Imm Following
50	W. Gull	1	ce		ad
53					imm
55	phalarope	6	ce		sealions - 1
56					sealions - 4
57	phalarope	5			on water
1600	phalarope	5			on water
	W Gull	1	ce		imm
	Gull sp	4	ce		
1602	Sooty sh.	1			
1605	Cal Gull	4			Feeding over skipjack tuna
	Gull sp	5			
	Sooty sh	1			
	Jaeger sp	1			wh wings ^{linings} seen self
1606	Murrelet sp	2	W		ad, lt. phase
12	Phal sp.	1	ce		not with FF
12					on H ₂ O
15	Small Alcids	2	ce		sealions (1)
17	St. Pet.	1			off H ₂ O
20	W. Gull	3			1 ad 2 imm on water; 1 imm flying
21	Cal. Gulls	3	ce		ad
25	Sooty sh.	1	SW		rel 2
38	Sooty sh.	1			rel. 2
50	Phalarope sp	1	ce		on H ₂ O
51	Sooty sh	1	ce		
51	Phal. sp.	2	ce		on H ₂ O calling
52	Phal sp	2, 2	ce		" "
55	R. Phal	1	ce		" "
56	Phal sp	2	ce		Non Breeding Plumage
57					on H ₂ O
1700	Sooty shear	1	NE		Seal sp
01	Small Boad	1	SW		
04	Phal sp.	1	ce		on H ₂ O

STORM - 2
CALG - 23
GULL - 13
SUBM - 6
PHAL - 51
SMALL - 4
W GULL - 7
SS - 6
SOOTY - 1
MYTHO - 2
R. PHAL - 1
BOAD - 1

OBSERVERS:

SMITHSONIAN INSTITUTION
 DIVISION OF BIRDS
 AT SEA DAILY LOG - E

Ship
 Direction

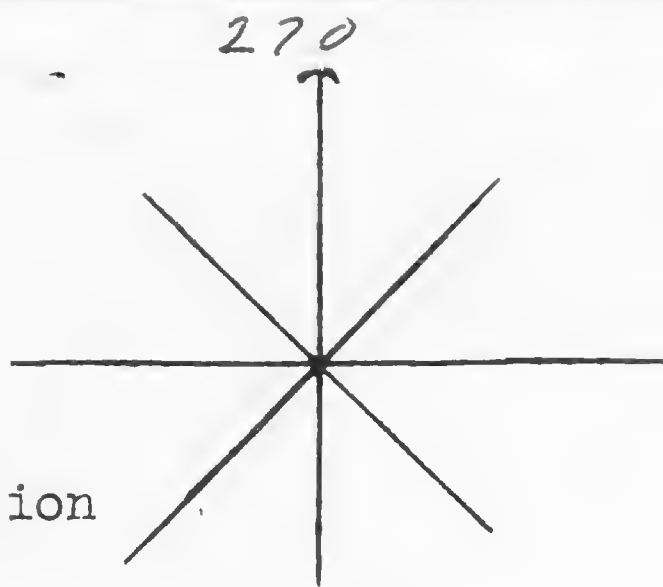


Date 16 Oct 67
 Pg.# 4

SPECIMEN
 or

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
1707	Phal sp	4	ce		on H ₂ O
08	N. Phal	1	ce		" Non Breeding Blunze
09	" "	3	ce		" " "
1721			N		porpoise? - 3 - small, dark, rolled out of water very slowly, without hardly a ripple - seemed to have hump on the back, behind fin
1726			N		same kind of animals
1727	Storm Petrel	2	SW		same kind of animals - 3 more - other side of ship
1728	St. petrel sp	1	E		
1732	Bird-sp	1			Gulls - about 1 or 2 per wire - seen for past few hours - most are probably same birds staying near ship.
1738	SOOTY SH	3	ce		sitting on a board - distant - directly in sun
1747	STORM PET	1	ce		ON H ₂ O
1750	WEST GULL	5	ce		3 imm 2 ad.
1756	SOOTY SH	1	ce		
1800					as above sightings dorsal small, white tip
1801	ALCID SP	2	ce		ca 10 small, showing white on H ₂ O in sun
1808	STORM SP	1	N		NZ/PINK F.
1812	PHAL SP	1	ce		ON H ₂ O
1813	JAEGER P.	4	ce		1 ad 3 lt. pom??
1813	SKUA	1	ce		
1813	BR. PEL.	1	ce		ON H ₂ O
1814	PHAL SP	4	ce		
1815	ALCID SP	2	ce		dove
1820	Pom. JAEGER	1	ce		rose off H ₂ O ad. lt. ph.
1830	SOOTY SH	1	ce		
1831	PINK-FOOT SA	1	ce		
1832					SUNSET
N OCT					
1840	JAEGER SP	20 ±	ce		1 ad pom seen
	SOOTY SH	8 ±	ce		} SITTING ON H ₂ O SHORTLY AFTER SS
	PINK FOOT	3 ±	ce		
	GULL SP	7 ±	ce		

PHAL SP - 4
 STORM - 4
 BIRD - 1
 SS - 5
 W. GULL - 5
 SKUA - 2
 SKUA - 1
 JEP - 4
 SKUA - 1
 BIRD - 1
 ALCID - 2
 Pom J - 1
 PINK - 1
 41 ✓



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

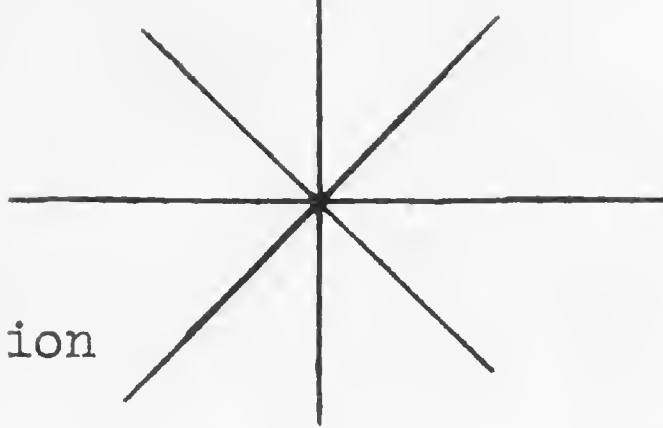
Date 17 Oct 67
Pg.# 1

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0700					Right whale dolphins (35) Begin observation
0716					Bairds Dolphin 3 riding Bow wave 3500 Dolphin sp. (Probably Bairds) 100 ± 15 122-45
22	N. Phalarope	2	ca		on the 0 Non Breeding Plumage
34	Tuarea	1	E		Davis
37	N. Phil	14	cee		
44	Alcid	2	ca		on the 0-nonbr. plum
47					" "
0812	BFA	(1)			Purpise 15 ± 3 35-00 122-53
0816					following - narrow white rump band skiff in water - Chandler + 2
0825					Right whale dolphin - 100+ - in tight line travelling west - up to 40 in view at once. small, black, no dorsal fin. - In view about 20 mins. 35-00 122-58
0832	Sooty sh	1	SW		from skiff
0910					skiff dead in water - begin maneuver to recover skiff
0940					skiff recovered
0915	Gull?	1	cee		large white bird, dark wings particularly toward tips - Underwings white - Alternately sitting and flying low to water - back in ship's wake - nearly as large as BFA also following. Wing flapping continuous - gull-like, not like albatross or shearwater.
1029	Red Phalarope	7	lee		Flushed from water - non br. plumage
1033	Pom? Jaeger	1	SE		dark ph - Pomarine rel. 2. - large; heavy flight.
1040					Gray whale - surfacing, blowing, finally diving showing flukes. Not seen thereafter. "hump" in back at beginning of dive was not quite pronounced enough for humpback. 35-00 123-15
1124	Herring? Gull	1			immature - 1st yr - Herring? possibly Eschrichtius gibbosus
1132	Storm petrel	2	W		rather uniform brown. - Following ship now - Arrived from west. Together.
1146					Paralleling ship at good distance
1200	Phalarope	1	cee		Enter Heavy Fog Visibility 300 ft or less
1209					called Nat'seen
1410					close observations
1411	BFA	(1)	cee		open
12	N. Phil	20	cee		Following ship
1430					on the 0 Non Breeding Plumage Dolphins ?(5) with dorsal long snout vade Bow wave 25 minutes Photographed TTL 34 59 124-04

270



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Date 17 Oct 67
Pg.# 2

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

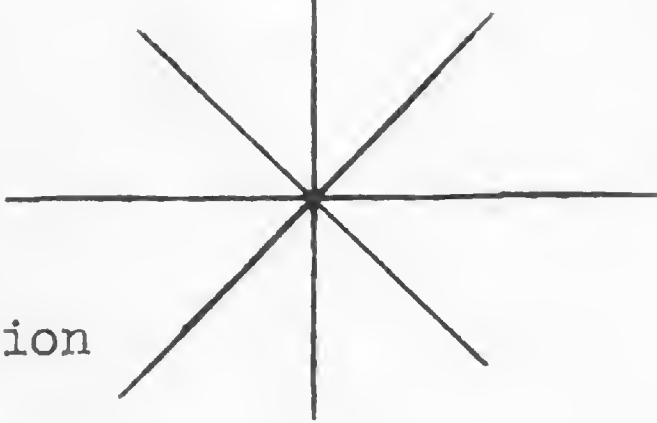
1535					Porpoise ca 10 3459 124-13
43					" " 10 15
1555	BFA	(2)	ce		1 lt, 1 dh.
1612	JAE G SP	1	SE		ad par. rel. 2 lt, ph.
1615					
1630	BFA	(3)	ce		SPERM WHALE REL. 2 - 1 INDIVIDUAL INDIVIDUAL 34-59 124-20
1810					Whale spouting - small, broad spout - 34-59 12439 animal not seen
1822					2 whales spouting - travelling fairly close together
1842					Sunset - close observations

N PHAL - 36
J SP. - 2
ALCID SP - 2
SS - 1
R PHAL 7
POM J - 1
Gull? - 1
HER G - 1
STORM - 2
PHAL SP - 1

54 54

S - change to E - 0825

OBSERVERS:



Ship Direction

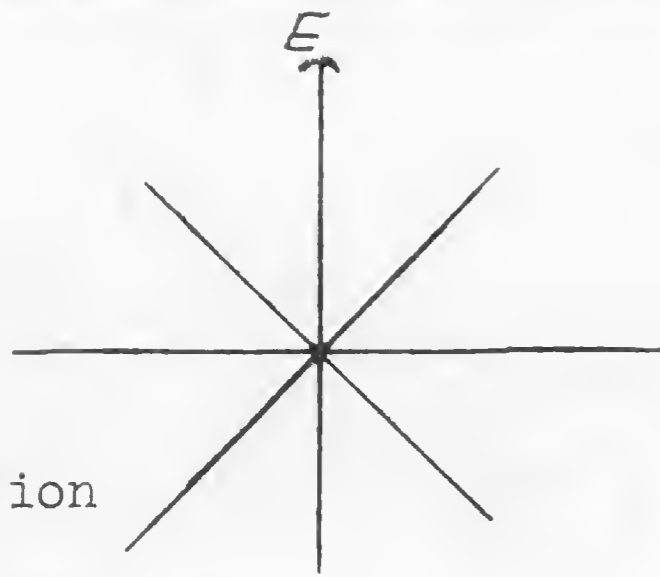
SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

Date Oct 18, 1967
Pg.# 1

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0730					Begin observations 34-23 126-28
0730					Porpoise - Delphinus perhaps - tight pod of up to 35 visible at once - others scattered behind - 100± animals leaped clear of water, dorsal fin prominent - light poor.
0732					Porpoise - second group in another direction - very distant so that only splashed area visible - probably same species - 50± <u>same</u>
0733					Sunrise
0740					Sun first appears over cloud bank along horizon
0816	BFA	①			no white ^{in tail} , following
0825					Begin change of course to west ^{east} heading - completed 0828
0845	BFA	①			still following - no white in rump
0920	BFA	①			Different from earlier BFA - pale upper tail coverts but not a sharp narrow band like yesterday's bird
1148	Lesser or Greater Yellowlegs	1	ce		circled ship then went south
1306	WRSP	2	E		
1320	RBTB	1	ce		on H ₂ O Ad
1630	BLACK-BELLIED PLOU	1	cece		winter plum
1631	RBTB	1	ce		rose off H ₂ O ad.
1632	RED PHAL	1	cece		
1645	RED PHAL	1	ce		ON H ₂ O
1655	LEACH SP	1	ce		WHITERUMP
1715	BIRD SP	1	S		
1807	DRSP	1	cece		Pronounced light wing marks - Hovered briefly at or just above surface with wings held aloft - Couldn't see color or length of legs.
					Sunset - close obs.
					BRH - 1 Yellow - 1 WRSP - 2 RBTB - 1 RPHAL - 2 BIRD - 1 DRSP - 1 11



SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Ship
Direction

Date Oct. 19, 1967
Pg. # 1

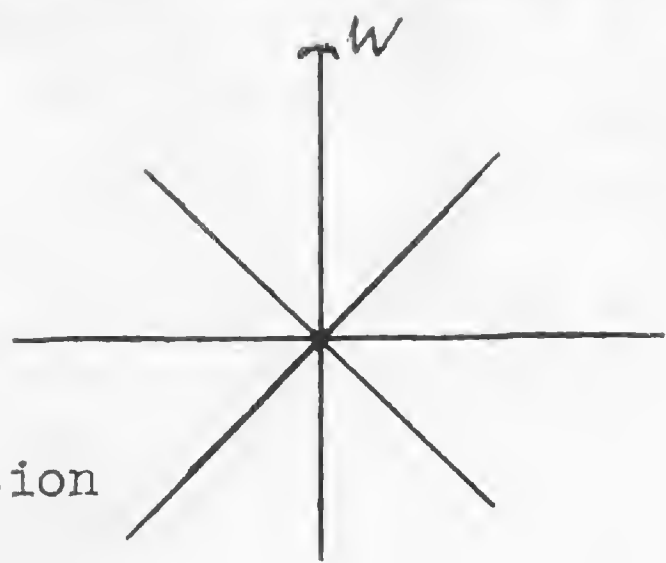
SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

0717					Sunrise - begin observations - cloudy, occasional sun for brief periods - wind NNW 25-30 knots - sea choppy.
0735	st. petrel sp	1	E		obs. shifted to bridge because of strong winds
0830					
0840	BFA	(2)			Following. One with white underbody, brightest on lower belly - and broad bright white patch on tail. - 2nd bird apparently all dark with some white on upper tail
0910	BFA	(2)			Same white bird, but dark one now has no white in tail
0930	BFA	(3)			" " " and two all dark birds
55	BFA	(4)			
56	Jaeger sp.	1			Following - ^{observed only 1 bird this -} _{shd be counted as separate bird - but not counted as 2 birds}
1017	Pom Jaeger	1	OS		up high
29	W. Phalarope	1	S		Ad Davis
45	Pom Jaeger	1	ce		
1100					Ad Davis following ship
22	Pom Jaeger	1			cc to South
25	S/KUA	1	S		
33	Pom Jaeger	1	a		Davis Ad
1155	Pom. Jaeger	1	S		Following ship
1258	Jaeger sp	1	E		Ad Int.
1330	Jaeger sp	1	ce		Ad - Intermediate phase - long tail feathers dark
1430	Herring Gull	1	W		light belly - prob. intermediate phase
1520					Imm or adult - Reliability 2 - circled ship several times, then sat on water
25	Pom Jaeger	1	S		cc to W
	Jaeger?	1	S		Int. Ad
36	Pom Jaeger	1	S		Together
1600	B. Phal	1	ce		Davis possibly Immature
31	Jaeger sp	1	ce		Imm following ship
50	Snow/Pet	3	ce		on the 0 Non Breeding Plumage
53	BFA	(1)	ce		on the 0
55	Phalarope sp	1	a		Following ship
1701	Herring Gull	1	ce		Imm
07	Pom Jaeger	1	ce		Ad Int.
16	Jaeger sp	1	ce		
1750	BFA	(3)	S		
1800	STORM PETS P	1	ce		Following; all sitting on water together for moment
1804	WRS P (Leach)	1	ce		
1830					SUNSET CLOSED BS

STORM - 1
OSP - 2
POM J. - 3
W. PHAL - 1
S/KUA - 1
10

JSP - 6
H GULL - 2
POM - 3
W. PHAL - 1
S/P - 1
WRS P - 1
STORM - 1
W. PHAL - 1
16



OBSERVERS: W

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

Ship
Direction

Date Oct. 20 1967
Pg. # 1

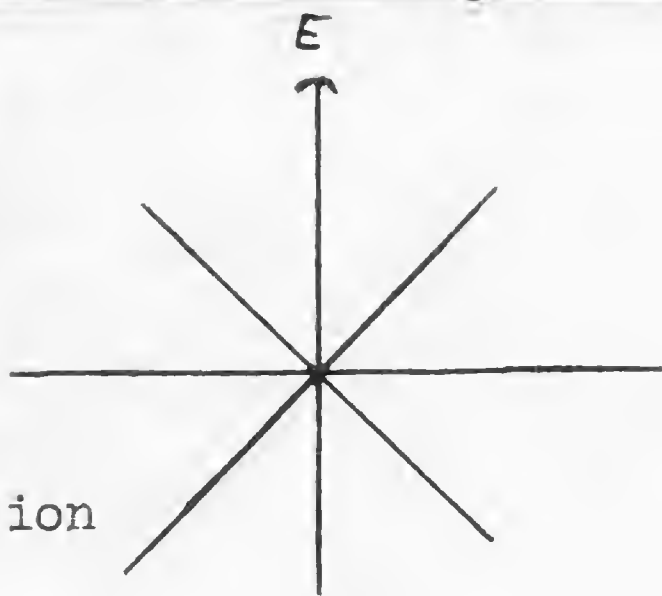
SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

0802	Leach Petrel BFA	2	see		Sunrise - begin obs. - Low stratus overcast - Wind northerly 20 knots - NW swells observation from the flying bridge better developed Together - identified by white rump
0807	BFA	①	see		all dark - following
0837	BFA	②	see		Following
0852	BFA	③	see		Following (now sitting together)
1000	BFA	③			still 3 - 1 with cleancut white rump
1135	BFA	④			Following
1205	St. Pet.	1	SW		Did not see white rump - so and very small -
1214	BFA	⑤	see		Possibly least Petrel
45	"	⑥	see		Pumped Gasoline - on H ₂ O
47	st. Pet	1	see		Following
52	WRSP	1	see		
1314	Jaeger SP	1	see		
1417	WRSP	1	SE		
1537	Jaeger SP	1	see		
1602	Leach's SP	1	S		
1608	BFA	⑥	see		1 lt 6 dk 1?
1614	GOLDB. PLOV.	1	see		calling winter plum circled ship
1620	Starling	1	see		Landed on ship for 3 mins then left heading south -
1656	M. Dove	1	see		Brown, mottled below - immature
1847					circling ship, occasionally landing - collected about 1715
					Sunset.

ST PET - 2
WRSP - 2
JSP - 2
LEACH - 1
GOLD - 1
STARL - 1
M DOV - 1

10



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Date 21 OCT 1967
Pg.# 1

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

0725					SUNRISE BEGIN OBS. FROM BRIDGE OVERCAST
0730	BFA	(1)	ce		dk following
0800	STARLING	1	ce		flying about landing on waste shot went overboard
0925	BFA	(2)	ce		1 lt 1 dk following
1007	LEACH SP	1	ce		WASP
1032	" "	1	S		"
	BFA	(3)			
1116	Audubon Warb.	1	ce		flew near bridge, but not seen to land. Disappeared to stern.
1140	BFA	(4)	ce		Following - 1 clean cut narrow white rump band + clear face strip
1235	Tree Sparrow Fringillid sp.	1	ce		1 smoky white rump, fairly narrow, 2 all dark.
1310	Leach's SP	1			on board shot went overboard (white-crowned Sparrow imit?)
1332	ST PT.	1	ce		
1355	WBSP	2	ce		
1405	Tree or Violet Green Swallow	1	ce		Circling ship
1554	BFA	(3)	ce		1 wh rump, 1 faint white markings, 1 dark.
1630	BFA	(5)	ce		1 wh rump, 2 dark, 1 faint white, 1?
1810	BFA	(4)	ce		Dumped Garbage
32	Passerine Audubon's Warbler	1	ce		sparrow as warbler. Circling ship
36					Sunset.

1840 Porpoise

3

Reported by bridge ~~lockout~~

32-27 122-20

0725-0902 16. (4)
0903-1836 92. (5)

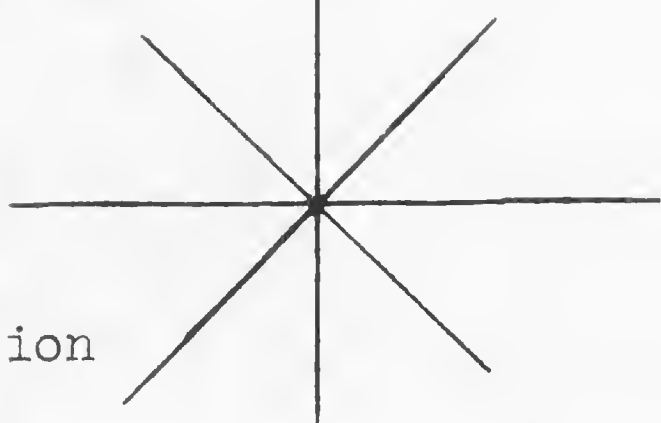
LSP-3
AUD-2
SPARROW-1
STPT-1
WASP-2
SWALLOW-1

S - change to W 0930

OBSERVERS:

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

Ship
Direction



Date Oct. 22, 1967
Pg.# 1

SPECIMEN
or

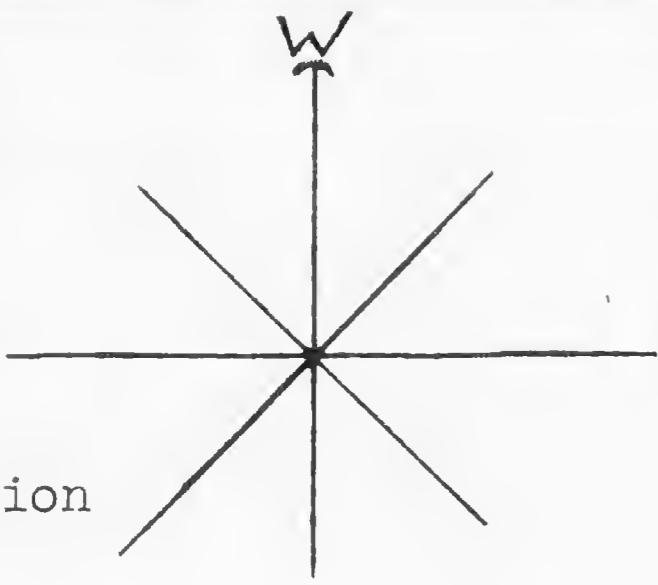
TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0713					
0725					Begin observations. Heavy overcast, light drizzle - winds NW 20 knots, sea light choppy. Obs from bridge.
0930					cc to 270°
1107	BFA	①			White rump.
29	WRSP	1			
1239					In Rain
1306	DRSP	1			Seal - 31-42 121-40
1347	BFA	①			Possibly Sooty Pet. In Rain
1404	WRSP	1			following ship Dark rump
1420	STORM PET	1			In light rain
1430	BFA	②			LEACH TYPE RUMP NOT SEEN
1550	STORM PET	1			sh. following
1617	" "	1			LEACH TYPE RUMP NOT SEEN
1745	WRSP	1			" " " " " "
1836					edge of light rain shower Sunset - close obs

0725 - 55

126

WRSP - 3
DRSP - 1
LSP - 3
7



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

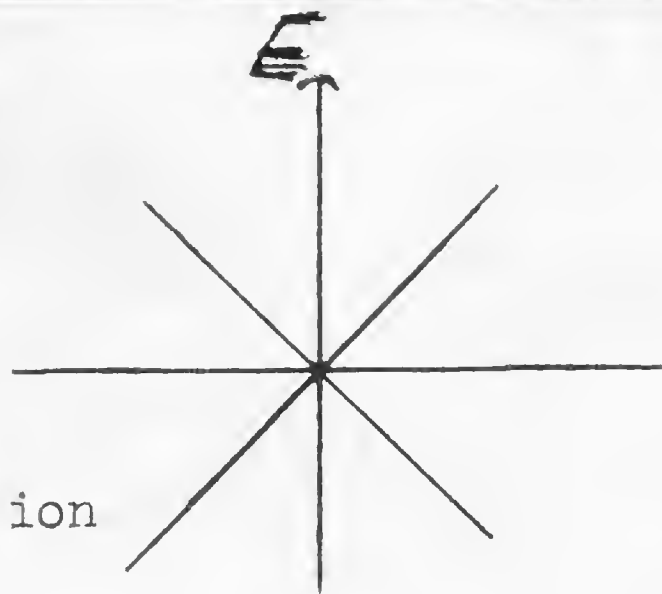
Date 23 Oct 1967
Pg. # 1

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

0727					Sunrise - begin observation - Heavy overcast. Wind NE 20 knts Obs. from flying bridge.
0730	BFA	(5)			following
0930	BFA	(5)			still 5: 1 dark, 1 bright white, 2 indistinct white, 1?
1000	BFA	(6)			
1458	WRSP	1			
1500				acc	
1545					c c to 5 Move obs to helo deck. Wind slackening ^{to 15 knts} and now from astern
1635	LEACH S.P.	4	S		2 pr. ?; 3 at least w/ white rump
1740	BFA	(4)	acc		2 light, 2 dk 1645 - Rain shower - light - shift obs back to bridge.
1846					Close obs - sunset

RECORDED



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

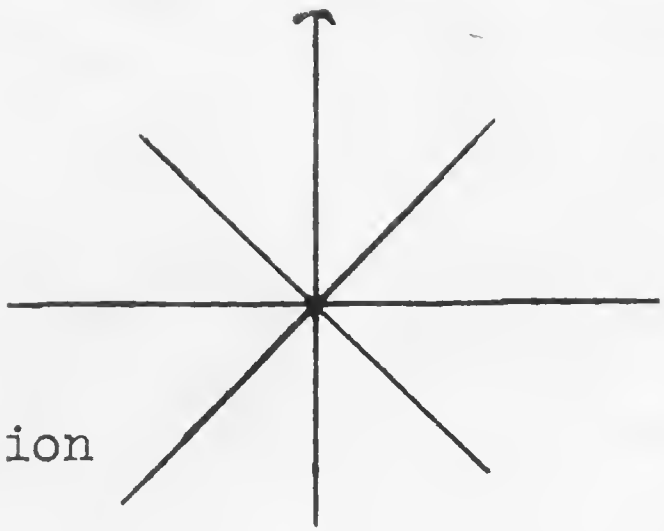
Date Oct. 24, 1967
Pg.# 1

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

0723					Sunrise - Partly cloudy - wind NE 12 Kts - Obs from bridge due to wind
0730	BFA	(4)			1 narrow white rump band, 3 dark
0732	Sooty shear	1	S		rel. 2
0745	BFA	(5)	S		5 th coming in from way, asterisk
0752	BFA	(7)			Garbage just dumped - 6 sat, 1 flying - 3 wh, 3 dark, 1? 0758 - 4 following 0801 - 5 - " 0805 - 6 - " - 2 dark, 1 mottled, 3 white
0803	shearwater sp	1	S		Not sooty - larger, ^(?) more gliding - fast - distant
0830-0900					Ship stopped for engine repair.
1120	BFA	(5)			2 white, 3 sitting
1135	BFA	(6)			5 sitting in tight group
1204	Leach's SP	2	ce		on H ₂ O flushed to E forked tail & dividing line obscured.
1512	WRSP	1	E		
20	Leach's SP	1	E		
55	Sooty/Sib	1	S		forked tail, dividing line in vmp.
56	WRSP	1	E		
1602	"	1	E		
1715	"	1	E		
25	Leach's SP	2	E		
1735	" "	1	ce		opposite ship at very close
1745	WATER PIPIT	1	ce		white rump
1805	S/Sb.	1	S		landed on deck several times, calling
1807	LEACH STORMPET	1	S		distant 123409 rel. 3
1822	" " "	1	ce		white rump 123411 rel. 3
1824	" " "	1	ce		" " " "
1831					SUNSET CLOSE OBS.

(5) (9)
SS - 1
SASP - 1
Leachsp - 3
WRSP - 3
PSP - 1
WRSP - 1
LSP - 6
WASP - 1
SASP - 1



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

NOCT GRID

OBSERVERS:

Date 17-18 Oct 67
Pg.# 1

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

0130

BEGIN OBS. CLEAR NW 12 KTS.

0236

BIRD SP

1

OR

PHAL?

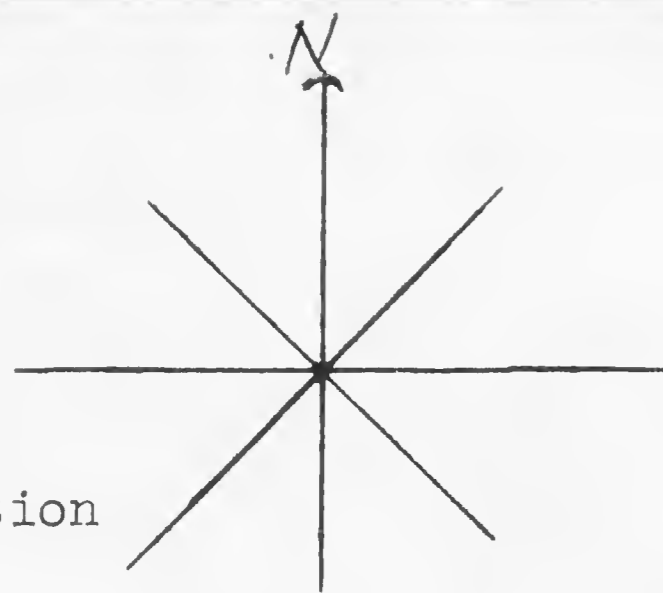
0125 BEGIN MOON ECLIPSE

0245

CA. ENTER TOTAL ECLIPSE PHASE

0345

CLOSE OBS (CA LEAVING TOTAL PHASE)



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

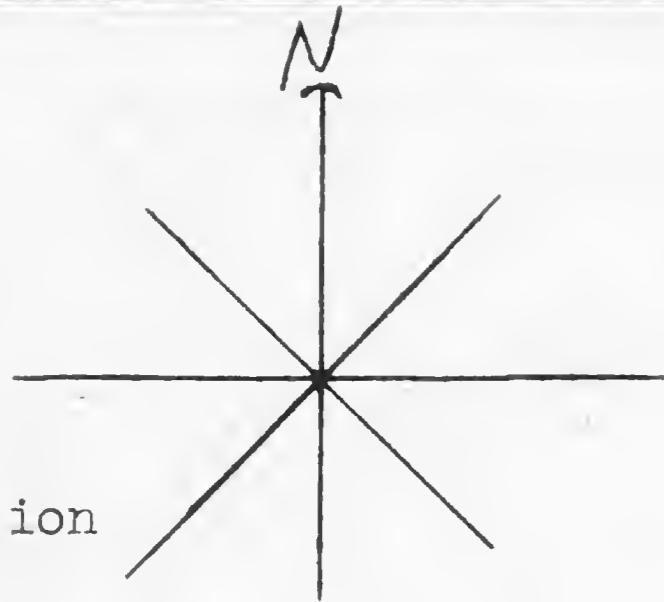
OBSERVERS:

SPECIMEN
or

Nocturnal - Goid

Date Oct 24-25, 1967
Pg.# 1

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
2250					Began
2305	WRSP	1	ae		
27	Phal sp	1			calling, not seen
47	Bird (SP?)	1			
0010	Passeriform	1			Probably warbler, not sparrow -
2357	Phalarope	2			calling, not seen
0040	Phal SP	1			seen, not calling
0050	Bird-sp	1			little
0050					close obs



SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

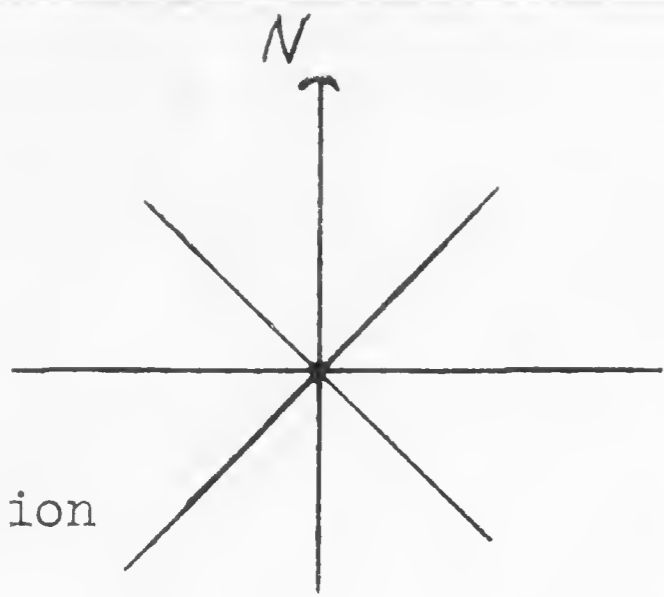
OBSERVERS:

Date 25 Oct. 1967
Pg.# 1

Ship
Direction

SPECIMEN
or
DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0722					SUNRISE BEGINS.
0723	BFA	(4)	ce		following
0735	LONGEARED O.	1	ce		arrived from NW followed briefly astern
0740	BFA	(5)	ce		1 lt 1 mottled 3 dk
0753	WRSP	1	ce		
0800	PASSERINESP	1	ce		flies about ship landed only once
C 0810	MOORING P	2	ce		1 col. R chondra
0820	BARN SWALLOW	1	ce		
C 0835	W. MEADOWLARK	1	ce		flying w/ remaining dove landed on deck collected
0848	WRSP	1	ce		
0930	STORM PET	1	ce		rump not seen
0937	RBTB	1	E		imm
0938	GULL SP	1	ce		imm herring/western type
1000	FULMAR	1	ce		dk.
1035	PASSERINESP.	(1)	ce		
1038	MOORING DOVE	1	ce		
1112	BARN SWALLOW	(1)	ce		probably same as 0820 BIRP
1115	WHITECROWNED SP	1	ce		ON DECK probably same as Passerim at 1035
1140	BFA	(7)			immature
1150	Sooty/SB	1	W		
1153	Arctic Loon	1	NE		Flew directly over deck - non-br. plum.
1200	BFA	(7)			2 wh, 1 mottled, 4 dark
1225	BFA	(3)			following merchant ship heading west across our bow - 3/4 mi.
1300	Shearwater Fulmar	2	W		At least 3. Together - Tawny brown (in sun) above, lighter (not white) areas outer half of upper wing surface. Body brown below on one, underwings not seen. Other with paler body, light underwings with darker edges. Alternately flapped and glided - Flapping slower than Sooty. Aroced a little in wind. About body size, or slightly larger.
1310	WRSP	1	ce		
1408	Leach SP.	1	ce		close to ship - divided white rump
1412	Mallard	15	E		All in brown plumage - blue speculum, whole trailing edge of wing long necked
1422	Fulmar	1	W		dark
1425	Fulmar	1	W		dark
1434	Fulmar	1	W		dark
	Jaeger-sp	1	W		travelling with Fulmar - not seen to chase
1540	Fulmar	1	W		dark
1630	BFA	(7)			following - 2 wh, 5 dark
	Herring Gull	1			following - imm
1640	WRSP	1	ce		paralleling ship - close - no division in wh rump



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

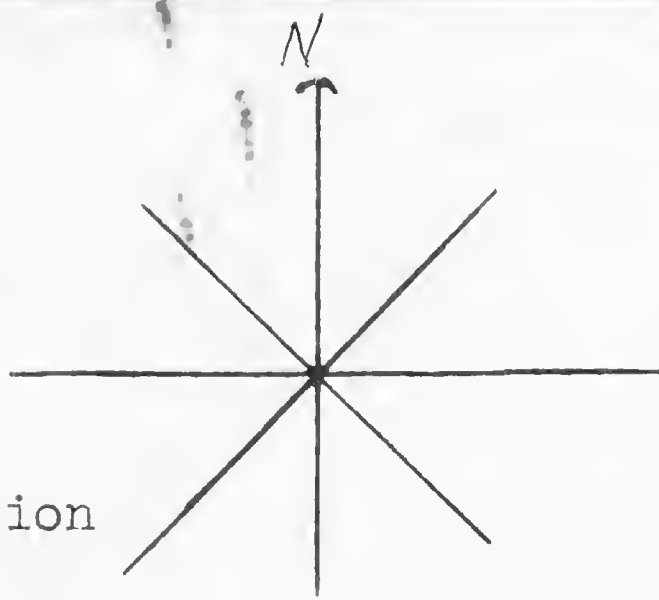
OBSERVERS:

Date Oct 25, 1967
Pg.# 2

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
1700	BFA	(8)			2 wh, 6 dark - Wind now 28 knots - Headwind.
1723	Jaeger-sp	1	SW		
1820	BFA	(8)	e		Following sun
1822	Heery Gull	(1)	W		Sunset



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

SPECIMEN *Non-GRID*
or

Date *Oct 26 1967*
Pg.# *1*

TIME SPECIES # DIR. BAND NO. REMARKS

0740					Begin obs Wind N 20-25 knots - Overcast - Very choppy sea
0745	BFA	(7)			Garbage dumped - all on water - 0753-2 ^{BFA} now following close
	Gull-sp	6			0756-3 ^{BFA} " "
0805	Fullmar	2	lee		No gulls
0810	BFA	(5)			
	Herring Gull	1			adult
	Gull sp	12			imm & sub-adult - some Herring's, prob some Westerns
0812	skua	1	lee		
0825	West Gull	1			ad
0840	BFA	(6)			following
	Gull sp	8			"
	" sp	5			close obs
0842	Sooty/SB	1	SE?		
0844	Sooty/SB	1	lee		
0845					close obs. 0845-1030 some fulmars seen 1 or 2 Gt-wing Gulls
1030+					Begin obs from fantail
	Gull-sp	75 ± 15			Following (no BFA) - Western - 2/3 ⁺ 10% ad
1035	Fullmar	1	lee		dark California - 1/4 ⁺ rest
1037	BFA	(3)			Herring - at least 1 adult sub + imm
1052	Fulmar	1			
1056	Passeriform	1	lee		following - nice light phase Passed through Gull congregation - moved off stern - possibly sparrow
1100	Gulls	100 ± 15			
	BFA	(2)			
1105	Fulmar	1	lee		dark
1107	Passerine				chased briefly by imm Western Gull
1115	Gulls	150 ± 25			Now flying parallel to ship, low over water - prob same as 1056 bird
	BFA	(3)			
	Gulls -	40 ±			Riding bow wave - addition to those stern
1115					4 all dark "probably" storm petrels - reported by LT Smith 1 possible shorebird
1130					close obs.
1330 to 1415					Obs. on bridge. Clear, windy About 100 Gulls - At least 3 Glaucouswingeds - immatures Numerous Ringbill Gulls - mostly adults Westerns & Californias predominating 1 Brown Pelican 1 Common Murre
	BFA -	7			
	Fulmar	5			
	Sooty/SB	2			
	Skua	1			
	Gulls	200 ± 25			
	Murre	1			
	Pelican	1			

PRELIMINARY REPORT

EASTERN AREA CRUISE #27

16-26 October 1967

including

EASTERN GRID SURVEY #15

Prepared by

Richard D. Chandler (Grid)

and

Robert L. Pyle (Non-Grid)

Eastern Area Cruise #27
16-26 October 1967
including
Eastern Grid Survey #15

Cruise Itinerary: 16 October 0800 - Depart Alameda
17 October 0300 - Enter Grid at Point "Ash"
25 October 2115 - Depart Grid at 35°00' N, 122°38' W
26 October 1800 - Arrive San Francisco

Survey Personnel: Richard Chandler (Biologist-in-Charge)
Robert L. Pyle
Thomas J. Lewis

Methods

Diurnal observations were held from the helicopter deck on the 16th through 18th. The watch was moved to the lee wing of the bridge from the 19th onward due chiefly to strong winds. Two periods of nocturnal watch were held at the searchlight on the port (lee) quarterdeck. The skiff was used for 1-1/2 hours on 17 October, but collecting conditions were not favorable again during the remainder of the cruise. No birds were secured from the skiff, but several errant landbirds were shot as they rested on the deck. Bathythermograph soundings were made at 2-hour intervals from 0400-2000 and at 2400 while in the Grid area. The BT instrument was lost overboard on 25 October at 2345. Other methods and procedures followed those established on previous cruises.

Cruise Track (See Figure #1)

The two non-Grid legs between San Francisco and the Grid are over essentially the same area and save for the influence of weather are roughly comparable. (See non-Grid discussion.) The nominal Grid track was covered, with little deviation from Point "Ash" to a point about 70 miles west of Point Oak. At this point, sunset of the 24th, it was prudent to turn north in order to make best use of the diurnal hours in the two sections "T" and "W" which needed the additional coverage. The 900 diurnal Grid miles were divided among the nine sections fairly equally (average deviation from 100 miles = about 11 miles; see Table #2).

Excellent cooperation was received from Captain Keiser, the deck force, weather personnel, quartermasters, and all concerned with the operation.

Conditions

During most of the survey period a moderate high pressure system to the west of the Grid and a trough of low pressure over the southern California area produced a gradient that resulted in moderately strong (20+ Kt.) northwest winds. Seas and winds were low on the 17th before the

western high had built up. By the 19th the gradient system was bringing in increased low cloudiness and winds. A thick fog bank in the forenoon of the 17th necessitated securing observations for two hours. Cold fog and mist patches were encountered irregularly during most of the survey, notably on the 22nd. Weather moderated on the 23rd as we moved westwardly into the amicably strengthening high. The high weakened on the 24th as a deepening low in the Gulf of Alaska began to send weather down the coast. The cloud deck deepened and northerly winds built up continually, reaching 25-30+ Kts. by the 26th.

In general the moderate to strong winds and seas made for less than average observing conditions, but for the most part I feel the biasing effect probably amounts to less than 10-15 percent reduction in observability over the last five surveys.

Nocturnal conditions were very poor. A full moon on the 17th-18th continued to shine through broken skies for five nights. An eclipse and concurrent nocturnal observations began at 0125 on the 18th. During the hour preceding the total phase of the eclipse no birds were recorded. A single unidentified bird was logged just about at the beginning of the dark phase. No further birds were recorded during an hour of eclipsed darkness. Deep cloud layers the night of 24-25 October blotted out an already waning moon and eight birds were logged during two hours of watch. No other attempts were made to hold night watches.

Broad slick areas were found, as in previous surveys, around 35° N, 123° W. A wide variety of surface and subsurface life was evident from the skiff on that day. Aside from this fairly "cluttered" area in the northeast little else was noted in the rest of the Grid. A few floating logs and various pieces of debris were noted in the western central areas. BT data and previous observations indicate that this area (roughly, sections "U & X") is a relatively stagnant region, often barren of birds and usually with a good deal of flotsam; logs, planking, etc.

Collections

Two Mourning Doves and one Meadowlark were collected in the Grid, and one Meadowlark was collected outside the Grid. One serum sample was obtained from the Meadowlark outside the Grid, but none were obtained in the Grid. No mammal or other collections were obtained.

Eastern Grid Survey #15

Over 900 miles and 99.2 hours of diurnal observations, 187 birds of 24 species were recorded. An additional nine birds of at least three species were recorded over 40 miles of nocturnal watch. Fourteen sightings of marine mammals were made.

Highlights

- 1) Overall linear density -- .208 -- easily the lowest yet recorded for one survey.
- 2) Virtual disappearance of fall migrants, i.e., Arctic Tern, Sooty Shearwater, Leach's Storm Petrel.
- 3) Early hints of the "winter populations" arriving, i.e., Fulmar, Herring Gull, Red-tailed Tropicbird.
- 4) Continued occurrence of unusual land and shorebird vagrants, including eight new Grid species: Arctic Loon, Mallard, Yellowlegs sp., Water Pipit, Barn Swallow, Starling, White-crowned Sparrow, Audubon's Shearwater.

A special appendix summarizing the birds recorded for E.G.S. ## 1-15 by the higher taxonomic categories, is included here as Tables 3 and 4.

General

Again the overall pattern of distribution within the Grid finds the highest density in the northeast and the lowest density in the opposite corner:

. 102</td <td style="text-align: center;">.<!--615</td--> <td style="text-align: center;">.330</td> </td>	. 615</td <td style="text-align: center;">.330</td>	.330
-----	-----	-----
.130	.101	.344
-----	-----	-----
.047	.107	.131

Birds per linear mile

The sectional distribution of number of species shows a similar pattern:

6	7	7
-----	-----	-----
5	4	13
-----	-----	-----
1	2	3

Number of species observed in each section.

Phalaropes and Storm Petrels together account for about 55 percent of the total birds observed. Another 13 percent is added by Jaegers. The remaining one-third presents rather a menagerie of odds and ends, loosely categorized as follows:

Percent of Total

"Respectable" pelagic seabirds (Shear/Pets, Alcids, Skua, Tropicbirds)	11
Puddle Ducks	8
Passerines (Tweety Birds) (6 species)	6
"Marginal" Pelagic seabirds (Loon, Herring Gull)	4
Doves	2
Accidental shorebirds	2
Owls (1)	1

The general situation found in this Grid, chiefly the overall paucity of birds, is apparently the transitory state that occurs: 1) After the typical migrant species, Leach's Storm Petrel, Terns, Phalaropes(?), Shear/Pets., etc. have passed through and are now generally to the south of the Grid area, and 2) Before the typical winter residents, Gulls, Alcids, Fulmars, Kittiwakes, etc., have arrived from the north. The duration of this lull is probably fairly short, as vanguard Fulmars and Gulls are presently appearing. The next two surveys I suspect will show an overall increase.

Sections, R, S, T, U, V, W, X, Y, Z refer respectively to 1, 2, 3, 4, 5, 6, 7, 8, 9; and NW, N-Center, NE, Center-West, Center-Center, Center-East, SW, S-Center, SE.

Nine division shorthand notations used here are similar to those discussed in the report for E.G.S. #10.

SPECIES ACCOUNTS - GRID

Black-footed Albatross	# Obs.	43
<u>Diomedea nigripes</u>	Avg. # Day	4.8
	Median (of 9 days)	6
See Figure #2	High max. day count	8
See also report for EGS #13	Low max. day count	1

RUMP COLOR (Sample Size = 37)			
	Sharp White	Mottled	Dark
#	10	4	23
%	27	11	62

After having decreased through four surveys, from July to mid-September, an increase seems to be underway at present. The mean # of birds/day per survey reached a low of 3.1 in mid-September then rose to 5.4 in early October and dropped slightly to 4.8 during the present survey. The overall tendency suggests an increase but future cruises will make this more clear. I hypothesized in the EGS #13 report that a decrease in the proportion of white-rumped birds would occur along with the, also hypothesized, overall increase. It is not clear as yet whether or not this is occurring.

(As in the previous two reports all albatross data are handled in the Species Account only and are, for the purposes of the tables, not considered to be birds).

Fulmar	# Obs.	7
<u>Fulmarus glacialis</u>		

Seven dark-phase birds were recorded on the last day in the Grid; sections "T" and "W". Six were moving west. These are the first of the season and no doubt will increase.

Sooty Shearwater	# Obs. = 2
Sooty or Slender-billed Shearwater	# Obs. = $\frac{3}{5}$

0	1	0
0	0	1
0	2	1

seen in each section

Evidently the fall migration is a rather abrupt peak. Grid numbers have dropped by a factor of 20 in two weeks. I would set the dates of maximum exodus at September 6-20. Five birds barely constitute a valid distribution pattern, but what there is suggests an unsurprising clustering in the south.

Leach's Storm Petrel	# Obs. = 53
<u>Oceanodroma leucorhoa</u>	
3 3 3	.034 .033 .029
5 8 6	.059 .062 .059
5 6 14	.047 .072 .114
# Obs. in each section	Birds/Linear Mile/Section

The wave of birds that was passing through the center of the Grid area during the last survey (early October) has evidently continued south. That wave, unlike the postbreeding summering populations, was distinctly and highly directive. I feel that those birds were the nominate race (O. l. leucorhoa) from stations to the north as they appeared to be larger and virtually all were conspicuously white-rumped. I believe it is probably this general population that makes up the bulk of the Leach's that spread westward along the low latitudes in the central Pacific. The current density is by far the lowest yet recorded. The birds seen did not appear to be directional and I doubt that many migrant stragglers are still lingering in the Grid area. The birds struck me as being chiefly the smaller small-rump patched birds from more local breeding stations. I suggest that the slight concentration of birds in the southeast corner represents birds from the winter breeding populations of Isle Guadalupe. As the breeding cycle there finishes up I expect this density peak in the southeast to remain, while the overall density increases as postbreeders and young disperse. January and February 1967 data also indicate this pattern.

Problems continue to arise concerning the identification, specific and subspecific, of the Storm Petrels encountered in the Grid. Using the ADP system it is, at times, difficult to describe a sighting, and no standard procedure has yet been adopted. My present thoughts on the Hydrobatids of the Grid are outlined roughly as follows:

Fork-tailed Storm Petrel Oceanodroma furcata

Little problem. The Grid area evidently delimits the usual southern

wintering range. The only identification problem is subspecific and this is best solved down a gun barrel.

Ashy Petrel Oceanodroma homochroa

Still a mystery bird on the Grid. This is the closest breeding Storm Petrel to the Grid (in low numbers, albeit), but it hasn't turned up in Grid collections or even been tentatively seen. I think the non-breeding birds must stay very close to the coast all year round; in such areas as Monterey Bay perhaps. It remains a possibility though, especially around Points Ash or Dogwood perhaps in late summer. Identification, especially from a large ship where the upperwings are often obscured, is difficult, and the possibility, perhaps very remote, of confusion with a Dark-rumped Leach is (for me) the most touchy identification problem among the local Storm Petrels.

Wilson's Storm Petrel Oceanites oceanicus

Just barely even expectable. Identification is not difficult to experienced observers, and is not seriously included among the abbreviation "WRSP" for "White-rumped Storm Petrel."

Least Storm Petrel Halocyptena microsoma

Highly unlikely at any distance from land let alone as far north as the Grid. Not impossible but I would be highly sceptical without the specimen.

Black Storm Petrel Oceanodroma melania

Erratic, but evidently on the Grid. Can be confused with large nominate Leach's if flight pattern is used as main field mark. Next to Ashy the only other bird that causes specific identification problems with Leach's.

Leach's Storm Petrel Oceanodroma leucorhoa

Taxonomically a mess. Upon carefully glassing a Storm Petrel on the Grid, Fork-tailed, Black, Least, and (by mostly common sense) Ashy can be eliminated quickly. Which leaves only Leach's. Thus far it appears that virtually (but not quite all!) dark-plumaged Storm Petrels are indeed Leach's, but the possibility of the others occurring must not be entirely overlooked. ADP coding is a problem because of rather artificial sub-specific nomenclature. In the field any one of the three or four southern forms may appear dark-rumped. The taxonomic problem should not be decided on the bow however and nothing is lost if all Leach's are coded 123409 and their plumage, behavior, size, etc., recorded under remarks for future tabulation in the report. The species reliability code should be left to your judgment or conscience. I would use "0" 95 percent of the time.

Red-billed Tropicbird
Phaethon aethereus

Obs. = 2

An adult was seen in "R" on the 18th. I believe this is the first record in a western section. A nonadult was seen in "W" the more usual area for this species to turn up.

Red-tailed Tropicbird
Phaethon rubricauda

Obs. = 1

An adult, the first bird since mid-April, was flushed from the water in "R".

Mallard
Anas platyrhynchos

Obs. = 15

A single flock, all in brown plumage, were heading east in section "T".

Red Phalarope
Phalaropus fulicarius

Obs. = 10

Northern Phalarope
Lobipes lobatus

Obs. = 37

Phalarope sp.

Obs. = 2

2	44	1
2	0	0
0	0	0

observed in each section

Both species were seen on slicks in the same area where they have been found since July. Of several possible reasons, I can offer only one reasonable explanation for the very low numbers (compared to the spring peak) of Red Phalaropes recorded this fall: They pass to the south far to the west of the Grid area. The presence of Northern Phalaropes on the Grid this survey is as unusual as their only other occurrence in late July.

Black-bellied Plover
Squatarola squatarola

Obs. = 1

A winter-plumaged bird silently circled the ship on 18 October in "R".

Golden Plover
Pluvialis dominica

Obs. = 1

A winter-plumaged bird circled the ship, calling frequently, in section "U".

Yellowlegs sp. # Obs. = 1
Totanus sp.

A bird circled the ship and departed southward. It was not identified as to species.

Skua # Obs. = 1
Catharacta skua

A bird followed the ship briefly in section "T".

Pomarine Jaeger # Obs. = 9
 Jaeger sp. # Obs. = $\frac{14}{23}$

0	3	9
2	0	9
0	0	0

Jaegers are the most conspicuous element of the avifauna that still appear to retain a transient-type status. The "coastal-crowding" distribution pattern has been consistently noted for Jaegers. Sixteen birds were recorded on the 19th in "T" and "W".

Gull? sp. # Obs. = 1
 Herring Gull # Obs. = 5
Larus argentatus

0	2	1
0	0	3
0	0	0

Birds observed per section

Five immature Herring Gulls were concentrated in the northeastern-most third of the Grid. A poorly seen bird, following far back in the wake, was thought to be a large Gull.

Alcid sp. # Obs. = 2

A pair of small Alcids were flushed in "S".

	<u># Obs.</u>
Mourning Dove	4 (2 coll.)
Long-eared Owl	1
Water Pipit	1
Barn Swallow (imm)	1
Tree/Violet-Green Swallow	1
Starling (imm)	2
Western Meadowlark	1 (coll.)
White-crowned sparrow (imm)	1
Sparrow sp.	1
Audubon's Warbler	2
Passerine sp.	$\frac{1}{16}$

0 0 0
 3 4 8
 0 0 1

Observed per section

The absence in the above list of Brown-headed Cowbird is notable. Mourning Doves have been recorded on several recent surveys, peaking in mid-September. Long-eared Owl and Western Meadowlark have each been recorded once previously. The other species are new to the growing list of accidental Grid birds.

GRID MAMMAL SIGHTINGS

<u>Species</u>	<u>No.</u>	<u>Date</u>	<u>Section</u>
<u>Lissodelphis borealis</u>	35	17 October	S
<u>Delphinus?</u>	3	"	S
Porpoise	15 ⁺ 3	"	S
<u>Lissodelphis borealis</u>	100+	"	"
Gray Whale	1	"	S
<u>Delphinus</u>	5	"	S
Porpoise	10	"	S
Porpoise	10	"	S
Sperm? Whale	1	"	S
Whale	1	"	S
Whale	2	"	S
<u>Delphinus?</u>	100+	18 October	R
<u>Delphinus?</u>	50+	"	R
Porpoise	3	21 October	V
Seal?	1	22 October	Z

TABLE 1. Daily Summary of Observations, Eastern Grid Survey #15

<u>DIURNAL</u>					
<u>Date</u>	<u># Miles</u>	<u># Hours</u>	<u># Birds</u>	<u># Species</u>	<u>Linear Dens.</u>
17 Oct.	77	9.6	54	7	0.701
18 Oct.	102	11.2	11	6	0.105
19 Oct.	105	11.2	26	7	0.248
20 Oct.	96	11.4	12	5	0.125
21 Oct.	108	11.2	11	5	0.102
22 Oct.	108	11.2	7	1	0.065
23 Oct.	106	11.3	5	1	0.047
24 Oct.	98	11.1	18	3	0.185
25 Oct.	100	11.0	43	13	0.430
TOTAL	900	99.2	187	24	0.208
Avg./Day	100	11.0	2.1	5.3	

<u>NOCTURNAL</u>					
17-18 Oct.	21	2.3	1	1	-
24-25 Oct.	19	2.0	8	3	-
	40	4.3	9	3	

TABLE 2. Summary of Diurnal Bird Observations by Sections;
Part A - 9-Section Breakdown; Eastern Grid Survey #15, 17-25 October 1967

	(1) R		(2) S		(3) T		(4) U		(5) V	
	# Birds/ Mile	# Birds		# Birds		# Birds		# Birds		
Arctic Loon										
Fulmar					.039	4				
Sooty/Slender Sh.			.011	1						
Misc. Unident. Sher/Pet.										
Storm Petrel	.034	3	.033	3	.029	3	.059	5	.062	8
Red-billed Tropicbird	.011	1								
Red-tailed Tropicbird	.011	1								
Mallard					.146	15				
Red Phalarope	.023	2	.077	7						
Northern Phalarope			.396	36	.010	1				
Phalarope sp.			.011	1						
Black-bellied Plover	.011	1								
Golden Plover							.012	1		
Yellowlegs sp.	.011	1								
Skua					.010	1				
Jaegers			.033	3	.087	9	.024	2		
Gulls			.022	2	.010	1				
Alcid sp.			.022	2						
Mourning Dove							.012	1		
Long-eared Owl										
Water Pipit										
Swallows									.008	1
Starling							.024	2		
Western Meadowlark										
White-crowned Sparrow										
Sparrow sp.									.008	1
Audubon's Warbler									.017	2
Passerine sp.										
Bird sp.			.011	1						
Total	.102	9	.615	56	.330	34	.130	11	.101	12
# Miles		88		91		103		85		119
# Hours		9.6		11.2		10.9		9.9		12.7
# Species		6		7		7		5		4

TABLE 2. Summary of Diurnal Bird Observations by Sections;
Part A - 9-Section Breakdown; Eastern Grid Survey #15, 17-25 October 1967

	(6) W	(7) X	(8) Y	(9) Z	Total
Arctic Loon	.010	1			.001 1
Fulmar	.029	3			.008 7
Sooty/Slender Sh.	.010	1		.023 2 .008 1	.006 5
Misc. Unident. Sher/Pet.	.010	1		.012 1	.002 2
Storm Petrel	.059	6	.047 5	.072 6 .114 14	.059 53
Red-billed Tropicbird	.010	1			.002 2
Red-tailed Tropicbird					.001 1
Mallard					.017 15
Red Phalarope	.010	1			.011 10
Northern Phalarope					.041 37
Phalarope sp.	.010	1			.002 2
Black-bellied Plover					.001 1
Golden Plover					.001 1
Yellowlegs sp.					.001 1
Skua					.001 1
Jaegers	.088	9			.026 23
Gulls	.029	3			.007 6
Alcid sp.					.002 2
Mourning Dove	.029	3			.004 4
Long-eared Owl	.010	1			.001 1
Water Pipit				.008 1	.001 1
Swallows	.010	1			.002 2
Starling					.002 2
Western Meadowlark	.010	1			.001 1
White-crowned Sparrow	.010	1			.001 1
Sparrow sp.					.001 1
Audubon's Warbler					.002 2
Passerine sp.	.010	1			.001 1
Bird sp.				.0	.001 1
Total	.344	35	.047 5	.107 9 .131 16	.208 187
# Miles		102	106	84	122 900
# Hours		11.3	11.3	9.5	12.8 992
# Species		13	1	2	3 24

TABLE 2. Summary of Diurnal Bird Observations by Sections;
Part B - East-West, and North-South Thirds; Eastern Grid Survey #15,
17-25 October 1967

	R+S+T North		U+V+W Center		X+Y+Z South		R+U+X West	
Arctic Loon			.003	1				
Fulmar	.014	4	.010	3				
Sooty/Slender Sh.	.004	1	.003	1	.010	3		
Misc. Unident. Sher/Pet.			.003	1	.003	1		
Storm Petrel	.032	9	.062	19	.080	25	.047	13
Red-billed Tropicbird	.004	1	.003	1			.004	1
Red-tailed Tropicbird	.004	1					.004	1
Mallard	.053	15						
Red Phalarope	.032	9	.003	1			.007	2
Northern Phalarope	.131	37						
Phalarope sp.	.004	1	.003	1				
Black-bellied Plover	.004	1					.004	1
Golden Plover			.003	1			.004	1
Yellowlegs sp.	.004	1					.004	1
Skua	.004	1						
Jaegers	.042	12	.036	11			.007	2
Gulls	.011	3	.010	3				
Alcid sp.	.007	2						
Mourning Dove			.013	4			.004	1
Long-eared Owl			.003	1				
Water Pipit					.003	1		
Swallows			.007	2				
Starling			.007	2			.007	2
Western Meadowlark			.003	1				
White-crowned Sparrow			.003	1				
Sparrow sp.			.003	1				
Audubon's Warbler			.007	2				
Passerine sp.			.003	1				
Bird sp.	.004	1						
Total	.351	99	.190	58	.096	30	.090	25
# Miles		282		306		312		279
# Hours		31.7		33.9		33.6		30.8
# Species		14		16		3		10.

TABLE 2. Summary of Diurnal Bird Observations by Sections;
Part B - East-West, and North-South Thirds; Eastern Grid Survey #15,
17-25 October 1967

	S+V+Y		T+W+Z		Date Obs.*	<u>Total</u>		# Collected
	Center		East			% Total	No.	
Arctic Loon			.003	1	25 Oct.	0.5	1	
Fulmar			.021	7	25 Oct.	3.7	7	
Sooty/Slender Sh.	.010	3	.006	2		2.7	5	
Misc. Unident. Sher/Pet.	.003	1	.003	1		1.1	2	
Storm Petrel	.058	17	.070	23		28.4	53	
Red-billed Tropicbird			.003	1		1.1	2	
Red-tailed Tropicbird					18 Oct.	0.5	1	
Mallard			.046	15	25 Oct.	8.0	15	
Red Phalarope	.024	7	.003	1		5.4	10	
Northern Phalarope	.123	36	.003	1		19.8	37	
Phalarope sp.	.003	1	.003	1		1.1	2	
Black-bellied Plover					18 Oct.	0.5	1	
Golden Plover					20 Oct.	0.5	1	
Yellowlegs sp.					18 Oct.	0.5	1	
Skua			.003	1	19 Oct.	0.5	1	
Jaegers	.010	3	.055	18		12.3	23	
Gulls	.007	2	.012	4		3.2	6	
Alcid sp.	.007	2				1.1	2	
Mourning Dove			.009	3		2.1	4	2
Long-eared Owl			.003	1	25 Oct.	0.5	1	
Water Pipit			.003	1	24 Oct.	0.5	1	
Swallows	.003	1	.003	1		1.1	2	
Starling						1.1	2	
Western Meadowlark			.003	1	25 Oct.	0.5	1	1
White-crowned Sparrow			.003	1	25 Oct.	0.5	1	
Sparrow sp.	.003	1			21 Oct.	0.5	1	
Audubon's Warbler	.007	2			21 Oct.	1.1	2	
Passerine sp.			.003	1	25 Oct.	0.5	1	
Bird sp.	.003	1			18 Oct.	0.5	1	
Total	.262	77	.260	85		100	187	3
# Miles		294		327			900	
# Hours		33.4		35.0			992	
# Species		10		17			24	

* When all sightings are in one day.

TABLE 3. Composition of E.G.S. ##1-15 by Higher Taxa.

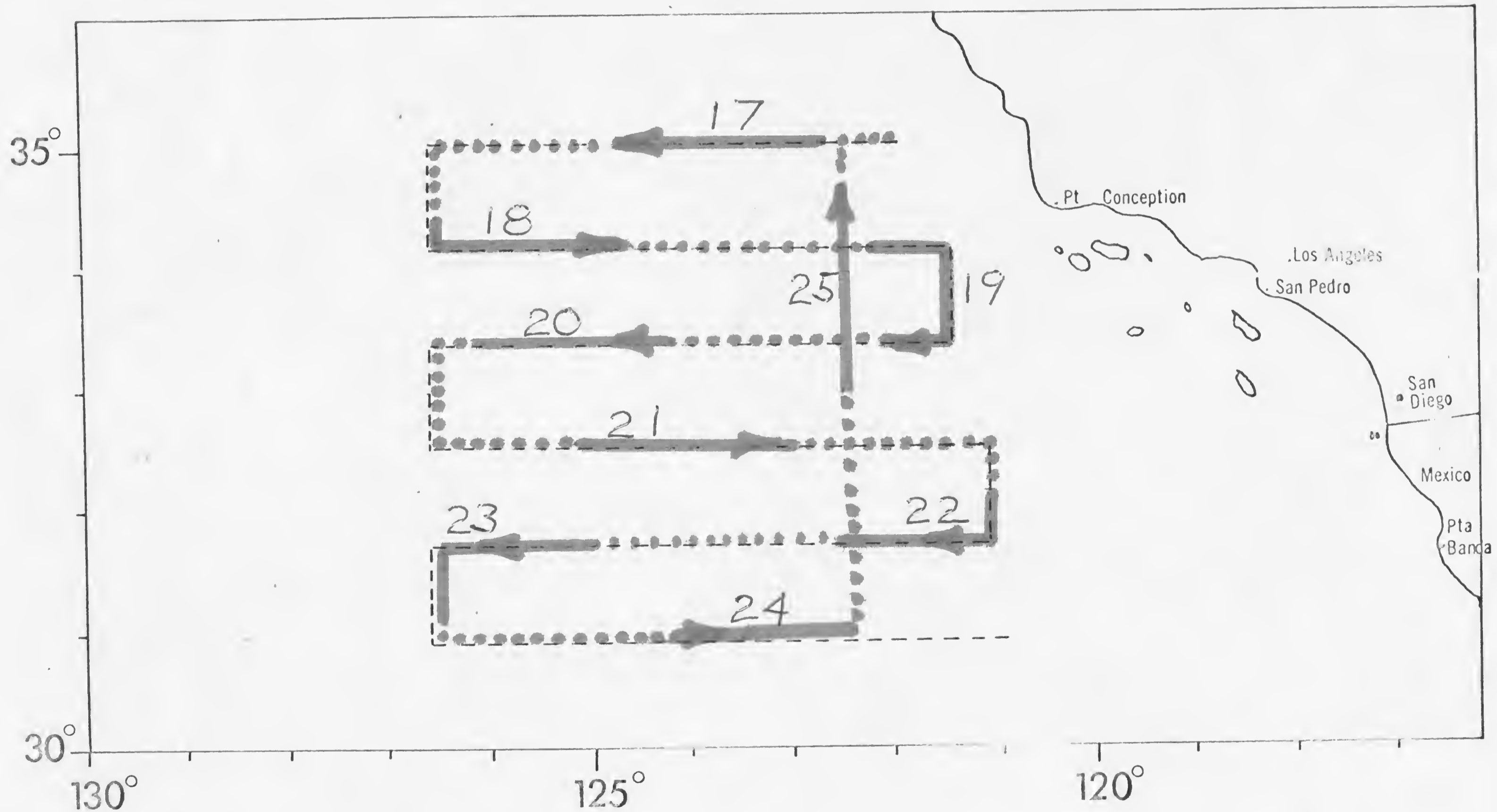
	# <u>Observed</u>	% <u>Total</u>
<u>"SEABIRDS"</u>	8881	98.96
Gaviiformes - Loons	1	0.01
Gaviidae - Loons	1	0.01
Procelariiformes - Tube Noses	3907	43.54
Diomedeidae - Albatrosses	662	7.38
Procelariidae	901	10.04
<u>Puffinus</u> - Shearwaters	356	3.97
<u>Pterodroma</u> - Gadfly Petrels	140	1.56
<u>Fulmarus</u> - Fulmar	352	3.92
Hydrobatidae - Storm Petrels	2344	26.12
Pelecaniformes - Toti Palmates	25	0.28
Phaethontidae - Tropicbirds	22	0.25
Pelicanidae - Pelicans	3	0.03
Anseriformes - Water Fowl	84	0.94
Anatidae - Ducks, Geese, and Swans	84	0.94
Charadriiformes	4757	53.01
Charadriidae - Plovers and Turnstones	27	0.30
Scolopacidae - Sandpipers	14	0.16
Phalaropodidae - Phalaropes	2621	29.21
Stercorariidae - Skuas and Jaegers	211	2.35
Laridae - Gulls and Terns	1611	17.95
Larinae - Gulls	1461	16.28
Sterninae - Terns	150	1.67
Alcidae - Alcids	244	2.72
 <u>"LANDBIRDS"</u>	 93	 1.04
Columbiformes - Pigeons and Allies	42	0.47
Columbidae - Pigeons and Doves	42	0.47
Strigiformes - Owls	2	0.02
Strigidae - Typical Owls	2	0.02
Caprimulgiformes - Goatsuckers and Allies	1	0.01
Caprimulgidae - Goatsuckers	1	0.01
Apodiformes - Swifts and Hummingbirds	1	0.01
Trochilidae - Hummingbirds	1	0.01
Passeriformes - Perching Birds	45	0.50
Tyrannidae - Tyrant Flycatchers	1	0.01
Hirundinidae - Swallows	2	0.02
Motacillidae - Pipits	1	0.01
Sturnidae - Starlings	2	0.02
Vireonidae - Vireos	1	0.01
Parulidae - Wood Warblers	5	0.06
Icteridae - Blackbirds	18	0.21
Fringillidae - Sparrow, Finches, etc.	6	0.07

8974

TABLE 4. Taxonomic Categories Contributing More Than 1 Percent to Total E.G.S. to Date (1-15)

	<u>Percent</u>
<u>ORDERS</u>	
Charadriiformes	53.0
Procellariiformes	43.5
All other orders	<u>3.5</u>
	100.0
<u>FAMILIES</u>	
Phalaropodidae	29.2
Hydrobatidae	26.1
Laridae	18.0
Procellaridae	10.0
Diomedeidae	7.4
Alcidae	2.7
Stercorariidae	2.4
All other families	<u>4.2</u>
	100.0
<u>SPECIES</u>	
Red Phalarope	27.0
Leach's Storm Petrel	25.7
Herring Gull	7.7
Black-legged Kittiwake	7.3
Black-footed Albatross	7.1
Fulmar	3.9
Sooty Shearwater	2.8
Jaeger	2.3
<u>Sterna</u>	1.7
All other identified birds	8.1
All other unidentified birds	<u>6.5</u>
	100.0

FIG. #1 EASTERN GRID CRUISE TRACK



EASTERN AREA CRUISE NO. _____
 EASTERN GRID SURVEY NO. 15
 DATES 17-25 OCT. 1967

----- NORMAL GRID TRACK
 ————— ACTUAL CRUISE TRACK
 (diurnal)
 ACTUAL CRUISE
 (nocturnal)

Non-Grid Observations

R. L. Pyle

Diurnal observations were conducted en route from San Francisco to point Ash on October 16, and again October 26 returning to San Francisco along essentially the same track. Virtually calm winds and smooth sea on the 16th were very favorable for observing birds at a distance and on the water. However, strong headwinds and choppy sea on the 26th, particularly in the morning, severely hampered observation of most species, but probably were a significant reason why albatross and gulls followed the ship closely in large numbers on the 26th but not on the 16th.

On the 16th observations were recorded continuously for six hours up to sunset. On the 26th recorded observations were limited to one hour in the early morning, one hour in midmorning, and three-fourths hour in the early afternoon, because of the strong winds and preoccupation of observers with Grid data analysis and other end-of-cruise chores. Occasional spot observations between these periods confirmed the general picture, but were not officially logged.

Because of differences in weather conditions and observing time, far more birds other than gulls were recorded on the 16th (195 gulls, 256 others) than on the 26th (200⁺ gulls, 18 others). Table 4 summarizes the non-Grid observations. Comparisons between the two dates are discussed in the species accounts which follow.

Black-footed Albatross

None recorded on southbound leg. On northbound leg, seven were following when observations began in early morning, three were still following during the midmorning observation period, and none were recorded in the afternoon. Records of previous trips between San Francisco and the Grid should be checked for the possibility that albatross tend to be recorded farther north when following northbound ships than when following southbound ships.

Shearwaters and Petrels

Recorded in good numbers on the 16th but virtually absent on the 26th. Beside winds and observing time, this decrease probably also reflects the disappearance of fall migrating birds, as was experienced in the Grid. Of the 32 Pink-footed Shearwaters recorded on the 16th, 28 were in one group sitting on the water. On the 26th, four probable storm petrels together were reported by the bridge officer, but not officially recorded.

Fulmar

The single bird on the 16th was on the water, and may have been in abnormal condition as it did not flush but only fluttered aside to avoid

the closely approaching ship. Numbers on the 26th represent the first influx of the wintering population.

Phalaropes

Eighty-seven on the 16th vs. none on the 26th probably resulted largely from differences in weather and observing time, but may also reflect the passing migration.

Gulls

Numbers recorded on the 16th represent many individuals and groups sighted up to considerable distances on each side of the ship, some travelling with the ship, some not, but very few if any following closely behind. Numbers for the 26th represent maximum estimates of the large flock which followed steadily at one to two shiplengths astern, with a smaller flock over the bow. Most of the other gulls sighted on the 26th had either just left one of these flocks, or were en route to join them. The flock began in early morning with six gulls joining seven albatross in hovering over garbage just dumped. Numbers gradually grew to a maximum in late morning of 150± in the stern flock and 40± at the bow. The bow flock was directly over the port railing just behind the bow, riding the updraft from the strong wind coming from about 10 degrees off the port bow. It was impossible to keep track of individuals joining and departing from these flocks, so that total gulls in the area during the day were certainly much greater than the figures given.

Species composition of gulls on the two days was significantly different. Westerns, first, and Californias, second, comprised the overwhelming majority on both days. On the 16th other species recorded were Bonaparte, Sabine, and Heerman, all smaller gulls which (except possibly for Heerman) seldom follow ships. On the 26th other species recorded were Glaucous-winged, Herring, and Ring-billed, all of them strictly winter visitants with strong ship-following tendencies. One or two Glaucous-wingeds were seen on the 16th near Golden Gate Bridge before official observations began. On both dates well over half of the gulls were in immature or subadult plumage.

Alcids

Forty-three on the 16th vs. one on the 26th probably resulted largely from differences in weather and observing time. Most of the 27 recorded as "small alcids" were probably Cassin Auklets.

TABLE 4. Summary of Non-Grid Observations, Eastern Area Cruise No. 25

	<u>October 16</u>	<u>October 26</u>	
Black-footed Albatross	0	7	
Fulmar	1	5	
Pink-footed Shearwater	32	0	
New Zealand Shearwater	5	0	
Sooty Shearwater	28	2	
Shearwater sp.	7	0	
Storm Petrel sp.	6	0	
Brown Pelican	12	1	
Pelagic Cormorant	1	0	
Cormorant sp.	2	0	
Red Phalarope	4	0	
Northern Phalarope	13	0	
Phalarope sp.	70	0	
Skua	1	1	
Pomarine Jaeger	1	0	
Jaeger sp.	25	0	
Glaucous-winged Gull	0	3+	
Western Gull	24	100+	
Herring Gull	0	5+	
California Gull	52	75+	
Ring-billed Gull	0	20+	
Heerman Gull	1	0	
Bonaparte Gull	2	0	
Sabine Gull	9	0	
Gull sp.	105	0	
Common Murre	3	1	
Murrelet sp.	2	0	
Cassin Auklet	4	0	
Small Alcid sp.	27	0	
Medium alcid sp.	1	0	
Alcid sp.	6	0	
Waterbird sp.	1	0	
Mourning Dove	1	0	
Western Meadowlark	1	0	
Audubon Warbler	1	0	
Landbird sp.	1	1	
Total Birds	449	221+	
Sealions and/or seals	18	0	
Porpoises	19	0	
Whale	1	0	
Observing period	1240 - 1840	0740 - 0845 1030 - 1130 1330 - 1415	36°35' to 36°44' 37°00' to 37°04' 37°25' to 37°31'
Latitude span	37°26' to 36°30'		

Note: Two Common Egrets and one or two flocks of flying Surf Scoters were seen on the 16th outside Golden Gate before official observations began.

E.A.C. CRUISE DATA

SHIP

U.S. Hall #24-40 DATE 24 October 1967

	TIME	LAT.	LONG.
SUNRISE	0723	30°49N	124°16W
SUNSET	1836	30°55N	122°22W

TOTAL MILES TRAVELED SUNRISE TO SUNSET 98
~~105~~

POSITION

TIME	LAT.	LONG.
0400	30°50N	124°51W
0600	30°50N	124°31W
0800	30°49N	124°10W
1000	30°50N	123°52W
1200	30°50N	123°32W
1400	30°52N	123°10W
1600	30°53N	122°48W
1800	30°54N	122°27W
2000	31°06N	122°26W
2400	31°47N	122°28W

124°20'
124°01'
123°42'
123°21'
122°59'
122°38'

COURSE OR SPEED CHANGE

	FROM	TO	(AT)	LAT.	LONG.
<u>1830</u>	090	355		30°54N	122°22W

E.A.C. CRUISE DATA

SHIP USNSC 116-40 DATE 23 October '67

	TIME	LAT.	LONG.
SUNRISE	0727	31°37N	125°02W
SUNSET	1827 1826	31°04N	126°24W

TOTAL MILES TRAVELED SUNRISE TO SUNSET 106

POSITION

TIME	LAT.	LONG.	
0400	31°37N	124°28W	
0600	31°36N	124°46W	124°57'
0800	31°37N	125°08W	125°18'
1000	31°37N	125°28W	125°40'
1200	31°36N	125°51W	126°02'
1400	31°37N	126°14W	31°52' 126°25'
1600	31°25N	126°28W	31°16'
1800	31°08N	126°26W	
2000	30°52N	126°18W	
2400	30°50N	125°36W	

COURSE OR SPEED CHANGE

	FROM	TO	(AT)	LAT.	LONG.
1502	270	180		31°37N	126°25W
1915	180	090		30°54N	126°25W

E.A.C. CRUISE DATA

SHIP USCGC Halligan-40DATE 22 October '67

	TIME	LAT.	LONG.
SUNRISE	0713	32°05N	121°06 W
SUNSET	1836	31°40N	122°43W

TOTAL MILES TRAVELED SUNRISE TO SUNSET 108

POSITION

TIME	LAT.	LONG.	
0400	32°28N	121°19W	32°28 121°05
0600	32°17N	121°05W	32°08 121°05
0800	31°58N	121°05W	
1000	31-41N	121-24W	121°24'
1200	31-42N	121-33W	121°44'
1400	31-41N	121-55W	122°06'
1600	31°40N	122°17W	122°28'
1800	31°40N	122°38W	
2000	31°40N	122°58W	
2400	31°38N	123°40W	

COURSE OR SPEED CHANGE

	FROM	TO	(AT)	LAT.	LONG.
0500	090	180		32°28N	121°05W
0927	180	270		31°44N	121°06W

E.A.C. CRUISE DATA

SHIP AS HAN 416-40DATE 21 October '67

	TIME	LAT.	LONG.
SUNRISE	0725	32°32' N	125°09' W
SUNSET	1835	32°27' N	123°04' W

TOTAL MILES TRAVELED SUNRISE TO SUNSET 108

POSITION

TIME	LAT.	LONG.
0400	32°33' N	125°48' W
0600	32°33' N	125°26' W
0800	32°32' N	125°02' W
1000	32°33' N	124°35' W
1200	32°33' N	124°15' W
1400	32°31' N	123°54' W
1600	32°30' N	123°31' W
1800	32°27' N	123°10' W
2000	32°27' N	122°46' W
2400	32°26' N	122°04' W

COURSE OR SPEED CHANGE

	FROM	TO	(AT)	LAT.	LONG.
0030	180	090		32°33' N	126°27' W

E.A.C. CRUISE DATA

SHIP S.S. HALL YAG
40

DATE 20 Oct 1967

	TIME	LAT.	LONG.
SUNRISE	0724	33°24N	124°19W
SUNSET	1847	33°11N	126°22W

SR ¹⁰/₂₀ 0725

TOTAL MILES TRAVELED SUNRISE TO SUNSET 96

POSITION

TIME	LAT.	LONG.
0400	33°22N	123°45W
0600	33°22N	124°05W
0800	33°24N	124°25W
1000	33°22N	124°45W
1200	33-22N	125-06W
1400	33-20N	125-29W
1600	33-20N	125-47W
1800	33-18N	126°02W
2000	33-17N	126°20W
2400	32°40N	126°26W

124°25'
124°25'
125°18'
126°18'
126°55'
126°11'

COURSE OR SPEED CHANGE

	FROM	TO	(AT)	LAT.	LONG.
2015	270	180		33-16N	126°26

E.A.C. CRUISE DATA

SHIP J.S. Hall Og-40 DATE 19 Oct 1967

	TIME	LAT.	LONG.
SUNRISE	0717	34°07' N	122°10' W
SUNSET	1830	33°24' N	123°02'

TOTAL MILES TRAVELED SUNRISE TO SUNSET ¹⁰⁵ (105)

POSITION

TIME	LAT.	LONG.
0400	34°08' N	122°45' W
0600	34°07' N	122°22' W
0800	34°06' N	121°59' W
1000	34°05' N	121°38' W
1200	33°55' N	121°28' W
1400	33°39' N	121°28' W
1600	33°24' N	121°33' W
1800	33°21' N	121°57' W
2000	33°21' N	122°20' W
2400	33°20' N	123°03' W

122°34'
122°10'
121°48'
121°28'
34°06'
33°45'
33°28'
121°25'
3
121°45'
122°09'

COURSE OR SPEED CHANGE

	FROM	TO	(AT)	LAT.	LONG.
1100	090	180		34°06' N	121°28' W
1520	180	270		33°25' N	121°28' W

E.A.C. CRUISE DATA

SHIP US HAWK 1/16-40

DATE 18 Oct 1967

TIME LAT. LONG.
 SUNRISE 0733 34°23'N 126°28'W
 SUNSET 1842 34-08'N 124-33'W

102.0

TOTAL MILES TRAVELED SUNRISE TO SUNSET ~~104.4~~

POSITION

TIME	LAT.	LONG.
0400	34°56'N	126°25'W
0600	34°36'N	126°31'W
0800	34°18'N	126°26'W
1000	34°13'N	126°09'W
1200	34-13'N	125-47'W
1400	34-12'N	125-28'W
1600	34-11'N	125-04'W
1800	34-10'N	124-41'W
2000	34-08'N	124-19'W
2400	34-08'N	123-33'W

125°52' 0100
 34°57' 126°03' 0200
 126°14' 0300

34°27' 126°32'
 34°13' 126°19'
 125°58'
 125°35'
 125°16'
 124°52'
 124°30'

COURSE OR SPEED CHANGE

	FROM	TO	(AT)	LAT.	LONG.
0410	270	180		34°56'N	126°26'W
0825	180	270 090		34°13'N	126°24'W

E.A.C. CRUISE DATA

SHIP AS HALL YAG-40

DATE 17 Oct. 1967

	TIME	LAT.	LONG.
SUNRISE	0717	35°00N	122°45W
SUNSET	1843	35°00N	124°42W

TOTAL MILES TRAVELED SUNRISE TO SUNSET 97

POSITION

TIME	LAT.	LONG.
0400	35°04N	122°01W
0600	35°01N	122°30W
0800	35°00N	122°55W
1000	35°00N	123°08W
1200	35°00N	123°29W
1400	34°59N	124°00W
1600	34°59N	124°17W
1800	34°59N	124°37W
2000	35°00N	124°57W
2400	34°58N	125°41W

35°00 122°42
 123°02
 123°15
 123°44
 124°08
 124°27
 124°52

COURSE OR SPEED CHANGE

	FROM	TO	(AT)	LAT.	LONG.
0400	169	270		35°04	122°01W

at Pt. ASH

E.A.C. CRUISE DATA

SHIP J.S. Hall 1196-40 DATE 16 Oct. 1967

TIME LAT. LONG.
 SUNRISE
 SUNSET 1834 36°32' 122°24'

TOTAL MILES TRAVELED ~~SUNRISE TO SUNSET~~ ¹²⁴⁰ 98 miles ^{57 miles}

POSITION

TIME	LAT.	LONG.		
0400				
0600				
0800				
1000				
1200	<u>37°32.8 N</u>	<u>122°38.7 W</u>	<u>37°22'</u>	<u>122°39'</u>
1400	<u>37°12 N</u>	<u>122°39. W</u>	<u>37°04'</u>	<u>122°36'</u>
1600	<u>36°55 W</u>	<u>122°34 W</u>	<u>36-46'</u>	<u>122°30'</u>
1800	<u>36°37 N</u>	<u>122°26 W</u>	<u>36-28'</u>	<u>122°22'</u>
2000	<u>36°18 N</u>	<u>122°18 W</u>		
2400	<u>35°40 N</u>	<u>122°11. W</u>		

COURSE OR SPEED CHANGE

	FROM	TO	(AT)	LAT.	LONG.
<u>1406</u>	<u>185</u>	<u>159</u>		<u>37°12'</u>	<u>122°41'</u>