

R/V David Starr

Date 20 Feb. 1968 Ship Jordan (032) Cruise No. 76
 Organization POBSP Recorder RSC

Sunrise: Time 0721 Position: Lat. 30°16'N, Long. 116°22'W
 Sunset: Time 1837 Position: Lat. 28°07'N, Long. 115°27'W

Miles travelled from 0000 hours to sunrise = _____
 Miles travelled from sunrise to sunset = 140
 Miles travelled from sunset to 2400 hours = _____

TIME OF FIX TYPE OF FIX LATITUDE LONGITUDE

- 1.
- 2.
- 3.
- 4.
- 5.

Hourly Positions:

Time	Latitude N	Longitude W	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
0100						
0200						
0300						
0400						
0500						
0600						
0700	30 - 20	116 - 23				
0800	30 - 09	116 - 18				
0900	29 - 57	116 - 14				
1000	29 - 45	116 - 09				
1100	29 - 33	116 - 04				
1200	29 - 22	115 - 59				
1300	29 - 11	115 - 54				
1400	28 - 59	115 - 49				
1500	28 - 48	115 - 44				
1600	28 - 37	115 - 39				
1700	28 - 26	115 - 33				
1800	28 - 15	115 - 29				
1900	28 - 03	115 - 27				
2000						
2100						
2200						
2300						
2400						

EASTERN AREA CRUISE NO. 36
(EASTROPAC Monitor Cruise 76)

SUMMARY OF EASTERN PACIFIC OCEAN BIRD OBSERVATIONS

19 February - 05 April 1968
aboard the R/V DAVID STARR JORDAN

Prepared
by
Richard S. Crossin

ITINERARY

19 February 1968	1900 (+7 time)	Depart San Diego, California
23 February	1630	Arrive Manzanillo, Colima, Mex.
25 February	1900	Depart " " "
30 March	0330	Arrive " " "
31 March	0900	Depart " " "
5 April	0800	Arrive San Diego, California.

The following report summarizes bird and marine mammal observations conducted aboard the R/V DAVID STARR JORDAN during EASTROPAC Monitor Cruise No. 76 conducted by the Bureau of Commercial Fisheries for the purpose of tuna research. During the period 19 February through 5 April 1968, 269.2 hours of diurnal observations were conducted over a distance of 1996 nautical miles and 4,589 sea birds were recorded.

Excellent cooperation and assistance were received from both Dr. Thomas (Cruise Leader) and the scientific personnel and from Captain Forster and the ship's personnel. Their time and assistance given to launching and operation of the skiff are directly responsible for the successful bird collecting activities performed during this cruise.

The cruise track extended from San Diego along coastal Baja California to Manzanillo, Colima, on the Mexican mainland where the ship refueled, and thence to a point offshore Acapulco, Guerrero, where oceanographic studies were initiated. From Acapulco the cruise extended to 105° longitude and thence southward on this line to 20° S latitude. The original cruise plan, designed for a return north along 98° longitude, was changed and a return north via 112° longitude was made. This latter cruise leg was originally designed for the R/V THOMAS WASHINGTON, but serious illness to a crewman aboard that ship required that a run be made to the Galapagos. The WASHINGTON presumably conducted survey work along the 98° longitude line after departing the Galapagos. Except for a span between 20° S- 105°W to 10° S- 112° W, oceanographic work was continuous aboard the JORDAN until return to Manzanillo.

METHODS

Bird observations were primarily conducted only while the ship was underway between stations. Some observation time was spent while in the skiff during station time and these data are included in the total. Observations were made from the flying bridge which afforded the best possible view of the surrounding ocean. As Harrington pointed out in the Oct.-Dec. 1967 cruise report, continuous binocular observation for one person is impossible and birds were primarily spotted with the naked eye, with subsequent glassing for identification aid.

Collecting was performed whenever possible. Use of the small skiff whenever weather conditions permitted was made during several long oceanographic stations. Oil slicks were usually spread during these times in attempts to attract storm petrels as well as other species. Throughout the cruise 149 birds were collected; the majority of these were storm petrels of two species. Preparation of specimens at night occupied so much time that nocturnal observations were not held. Spot checks were made to ensure that species different from those recorded during diurnal observations were not being missed, but these times were not recorded.

Because of the time needed to write the present report, only a few hours daily of observation time were conducted during the return coastal run between Manzanillo and San Diego. Considerable observations have been conducted through this area and in fact reliable density estimates cannot be made whenever the ship is close to land.

The present cruise has been divided into sections according to the water types listed below. In most cases these water masses do not appear to be distinct boundaries for bird species. However, since we are dealing with pelagic species, subdivision by natural oceanic zones seems more appropriate than arbitrarily chosen lines. Delineation of the various currents was made from analyzation of oceanographic data.

AREA A. COASTAL WATERS

Time span: 20-27 Feb. and 29 March-5 April.

All coastal waters to 150 miles from shore from San Diego to Manzanillo and return are included in this area. Several different water types are undoubtedly included here as suggested by the distribution of certain pelagic bird species, but the usual land based species dominate throughout. Large flocks of mixed Sooty Terns and Townsend's Shearwaters were encountered at the mouth of the Gulf of California.

AREA B. NORTH EQUATORIAL CURRENT WATERS

Time span: 28 Feb.-1 March and 24-28 March.

Boundary limits: 7° N latitude - 13°-30 N latitude.

Moderately high numbers of large shearwaters, large Pterodroma, Leach type storm petrels and Sooty Terns were encountered in this area. Some influence of Clipperton Island based species also affects this region.

AREA C. NORTH EQUATORIAL COUNTER-CURRENT WATERS

Time span: 2-3 March.

Boundary limits: 4°N-7°N latitude along 105° longitude and 5°-30' N to 7°N along 112°W longitude.

A moderate number of large Pterodroma and Wedge-tailed Shearwaters were noted as well as fairly high numbers of Leach type storm petrels. The north and south boundary lines of this current are probably richer in animal life available to birds than within the current itself.

AREA D. SOUTH EQUATORIAL CURRENT WATERS

Time span: 4-10 March and 20-23 March.

Boundary limits: 4°N latitude to 11°-40' S latitude along 105°W longitude and 5°-30' N latitude to 2°-30' S latitude along 112°W longitude.

Low numbers of all species except storm petrels were encountered throughout. Although Leach's Storm Petrels were abundant in this area as well as farther north, practically all of the Galapagos Storm Petrels were recorded here.

AREA E. CENTRAL PACIFIC WATER MASS

Time span: 11-19 March.

Boundary limits: 11°-40' S to 20° S latitude along 105°W longitude and thence northwest and north along 112°W longitude to 2°-30' S latitude.

This area was characterized, and distinct from South Equatorial Current waters, by a deeper mixed layer, an increase in salinity and approximately a 1° C drop in surface temperature.

The vast majority of southern hemisphere petrels were encountered within the bounds of this area. Red-tailed Tropicbirds and Fairy Terns also showed a center of abundance here. Sooty Terns and Wedge-tailed Shearwaters were abundant both in this area and along northern coastal waters with relatively none throughout the intervening waters.

SPECIES ACCOUNTS

(Note: only species which warrant pertinent discussion are included below. See Table 3 for total avifauna.)

Pale-footed Shearwater
(Puffinus carneipes)

8

Sightings were usually of single individuals. One bird was shot down over an oil slick, only to get up again, fly through four more patterns and eventually outrun the skiff.

Pink-footed Shearwater
(Puffinus creatopus)

9

Six of the nine sightings were recorded in large mixed feeding flocks on 22 February at the mouth of the Gulf of California.

Wedge-tailed Shearwater
(Puffinus pacificus)

72

Two major concentrations were recorded. Predominantly dark phase birds were found in the Central Pacific Water Mass and mainly light phase birds in North Equatorial Current waters. These latter may have been from Clipperton Island where large numbers were recorded at this time last year. Approximately equal numbers of both color phases were recorded on the present cruise. One light phase bird was collected over an oil slick.

Sooty Shearwater
(Puffinus griseus)
Slender-billed Shearwater
(Puffinus tenuirostris)

7

The few scattered sightings of these very numerous species indicate that the northward spring migration is not through this area of the Pacific. One Slender-billed Shearwater was collected over an oil slick on 19 March and a Sooty Shearwater came aboard on the night of 26-27 March.

Townsend's Shearwater
(Puffinus puffinus auricularis)
Manx Shearwater
(Puffinus puffinus opisthomelas)

484

181

These two races of the common shearwater are readily distinguishable from each other even at fairly good distance. The Manx is brownish dorsally with dark flank patches. Townsends is quite black dorsally with prominent white "rump patches" as in the Hawaiian race newelli.

A concentration of Manx Shearwaters was noted on 20 February near San Benitos Island and another lesser concentration in a huge mixed feeding flock of Sooty Terns and Townsend's Shearwaters on 22 February at the mouth of the Gulf of California. One specimen of Townsend's Shearwater was collected from this flock.

Dark-rumped Petrel
(Pterodroma phaeopygia)

3

One specimen was collected at 2°-30' N; 105°W. At this locality the bird could conceivably be from either the Hawaiian area or the Galapagos and racial designation must await comparison of known origin specimens.

Juan Fernandez Petrel
(Pterodroma externa externa)
White-necked Petrel
(Pterodroma externa cervicalis)

35

1

Juan Fernandez Petrels were scattered in low numbers throughout all pelagic areas. Practically every individual was in heavy molt with large white patches in the primary and secondary regions. Two specimens were collected over oil slicks.

The one sighting of White-necked Petrel was unmistakable and I am certain that none of these were recorded as Juan Fernandez Petrels. This individual was in completely new fresh plumage indicating an earlier molt than in the Juan Fernandez Petrels.

Black-winged Petrel	15
(<u>Pterodroma hypoleuca nigripennis</u>)	
Bonin Island Petrel ? (<u>Pterodroma hypoleuca hypoleuca</u>)	4
White-winged Petrel (<u>Pterodroma leucoptera</u>)	1

These small Pterodroma were almost without exception recorded south of the South Equatorial Current in the Central Pacific Water Mass. This indicates their preference of a distinct water type. These forms will always pose identification problems and unless the individuals are close and viewed under good conditions, specific designation is hardly more than a guess. The sightings referred to Bonin Island Petrels ? could well have been the race P.l. brevipes of the White-winged Petrel. At least 13 other sightings were recorded simply as small Pterodroma.

Cooks Petrel	1
(<u>Pterodroma cookii</u>)	

Excellent views of a single individual were made on 1 April at the mouth of the Gulf of California. I am reasonably certain I saw none of these in the concentrations of similar small Pterodroma near 20°S.

Harcourt's Storm Petrel (<u>Oceanodroma castro</u>) ?	8
Leach's Storm Petrel (<u>Oceanodroma leucorhoa</u>)	178
Galapagos Storm Petrel (<u>Oceanodroma tethys</u>)	15
unidentified white-rumped storm petrels	213

Except for abundant coastal species, white-rumped storm petrels were second in numbers only to the Sooty Tern. High densities were recorded in both the North and South Equatorial Currents. Numbers dropped off considerably south of 5°S latitude.

Despite the elaborate "Keys" and other identification aids proposed by Project members, a white-rumped storm petrel at 100 yards is just that! The fantastic amount of variation in rump patches of Leach's easily covers the ranges of this character of all other white-rumped species. In time of molt Leach's tails are not necessarily forked; they occasionally may dabble their feet as do Wilson's; and their flight may be as erratic or as slow as any of the other species, depending upon their mood. I still maintain that the "Crossin Method" * of field identification of this group is the only sure way. By this method 125 specimens of white-rumped storm petrels were taken during the present cruise. Examination of this large series only emphasizes the folly of attempting to apply specific designation to all sighted birds. Of the 125 specimens, 112 were Leach's and 13 were Galapagos Storm Petrels. No Harcourt's Storm Petrels were collected and I am uncertain as to whether this species was even seen although I tentatively identified at least eight sightings as belonging to this species.

The great variation in size throughout the Leach sample indicates that at least two, and possibly more than two races are represented. Exceedingly small birds were taken which weigh less than many of the tiny Galapagos and exhibit most characters of this latter species (for a classical example, see specimen Field Series # 105225). Such individuals would be impossible to distinguish from typical Galapagos in the field. On certain

* This method avoids the need of heavy, cumbersome field glasses. A light-weight shotgun and plenty of ammo suffice.

birds, where the "typical" forked tail and "typical" divided rump of Leach's were not evident because of molt or badly shot birds, the color of the oil (uropygial) gland was found to be a reliable character to separate these two species. Leach's have a creamy-white oil gland, that of the Galapagos is a dark grey. Any combination of the two or more races and the two species were encountered together in the field.

Most specimens were collected over artificial oil slicks made with Wesson and/or cod liver oil. Throughout these oil slick operations I had the opportunity to test an old suspicion that storm petrels are able to detect an oil slick by smell. The evidence gathered during the present cruise strongly suggests this and a note concerning details of this phenomenon is being prepared for publication.

Identification of stomach remains in storm petrels is practically a lost cause because the majority of food is small, soft-bodied and quickly becomes unidentifiable through digestive action. In a few specimens of Leach's, however, the remains of squid were plainly identifiable. One stomach contained the outer coat and "pen" of a squid which was estimated to be ca. six inches long in life. It is doubtful whether storm petrels are large or ferocious enough to catch such a live animal and I presume wounded animals are probably taken over feeding orgies of tuna. One Leach's had copepod remains in the stomach.

White-throated Storm Petrel 3
(Nesofregetta albigularis)

All three individuals were sighted south of the South Equatorial Current.

Black Storm Petrel 11
(Loomelania melania)

All sightings were made on 22 and 23 February of ship followers across the mouth of the Gulf of California.

Fork-tailed Petrel 1
(Oceanodroma furcata)

The single sighting was noted with Black Storm Petrels following in the ship's wake on 22 February at the mouth of the Gulf of California.

Red-billed Tropicbird 14
(Phaethon aethereus)

This is predominantly a coastal species. All sightings were along the Mexican mainland. One specimen was collected.

Red-tailed Tropicbird 21
(Phaethon rubricauda)

Scattered sightings were made from near 20°S to 15°N, but all occurred along the western leg of the cruise. Five birds, mostly immatures, were collected.

White-tailed Tropicbird 2
(Phaethon lepturus)

Two individuals circled the ship near 20°S on 13 February. These probably are from one of the southern islands; Easter or Sala y Gomez.

Blue-footed Booby 25
(Sula neboxii)

This is a coastal species with all sightings along the Mexican mainland.

Blue-faced Booby 3
(Sula dactylatra)

The few birds sighted in equatorial current waters at remote distances from land could come from any of a number of origins.

Brown Booby 1019
(Sula leucogaster brewsteri)

Great numbers of this species were recorded along the Mexican mainland north of Manzanillo. On 31 March they were abundantly encountered with Laughing Gulls and lesser numbers of Sooty Terns feeding over small groups of sailfish. The white-headed adult males of this race are distinguishable.

Red-footed Booby 31
(Sula sula)

Most birds noted were dark plumaged immatures. Sightings ranged out to about 400⁺ miles from the Mexican coast. One immature was collected over an oil slick.

Frigatebirds 10

The few coastal sightings were presumed to represent the Magnificent Frigatebird (Fregata magnificens). One immature of as yet undetermined species was collected at 2°-30'N; 105°W on 4 March. The nearest land from this position is roughly 500 miles (Clipperton Island) and about 900 miles to the Galapagos Islands.

Red Phalarope (Phalaropus fulicarius) 14
Northern Phalarope (Lobipes lobatus) 81
unidentified phalarope sp. 267

Phalaropes were found in large flocks along the Baja California coast and Mexican mainland and scattered small numbers were encountered throughout the entire cruise as far south as 20°S. I believe that the majority of sightings were of Red Phalaropes. Five specimens of this species were collected. One taken on 20 March was molting into the breeding plumage.

Pomarine Jaeger (Stercorarius pomarinus) 37
Parasitic Jaeger (Stercorarius parasiticus) 3

Pomarines were common along the Mexican mainland coast and a few were encountered to 10°S. Most of these were in general areas of Sooty Tern concentrations. Two Parasitic Jaegers were recorded with a small group of Juan Fernandez Petrels at 12°S and another was sighted at 12°N.

Gulls (Larus sp.)

All gulls were recorded along coastal areas. Western and California Gulls were common along the Baja California coast and Laughing Gulls were most abundant along the Mexican mainland north of Manzanillo. One specimen each of Western and Laughing Gulls were collected.

Sooty Tern
(Sterna fuscata)

1316

Concentrations of Sooty Terns were found in two general areas. Along the mouth of the Gulf of California on 22 February large numbers were seen feeding over tuna in mixed flocks of Townsend's and Manx Shearwaters. Other lesser concentrations were recorded over tuna or sailfish north of 10°N. Other concentrations occurred at about 15°S on 12 and 16 March where birds were noted feeding over tuna or schools of flying fish. In the latter instance the flying fish were believed to be surfacing in huge numbers because of submerged tuna activity. The two widely scattered concentrations (north and south) probably indicate birds from two different origins.

Fairy Tern
(Gygis alba)

14

Most birds were recorded as single sightings or pairs and often in accompaniment with Sooty Terns in feeding flocks. All sightings were in the southern hemisphere from about 5°S southward.

MARINE MAMMALS

Marine mammals were scarce throughout the cruise. The majority of the few seen were along coastal waters. The only spectacular event was being able to view numbers of Pacific White-sided Dolphins through a sub-surface view plate as they performed aquatic acrobatics riding the bow wave in front of the ship. The few sightings are listed below.

TABLE 1'. Marine Mammal Sightings on EASTROPAC 76.

<u>Species</u>	<u>#</u>	<u>Date</u>	<u>Lat.</u>	<u>Long.</u>
Pacific Pilot Whale ? (<u>Globicephala scammoni</u>)	4	26 February	17°- 23' N	105°-50' W
Pacific White-sided Dolphin (<u>Lagenorhynchus obliquidens</u>)	20	21 February	25°- 42' N	113°-25' W
	80	21 February	24°- 35' N	112°-31' W
	250	3 April	26°- 12' N	113°-42' W
Spinner ? (<u>Stenella longirostris</u>)	20	26 February	17°- 30' N	102°-07' W
	50	26 February	17°- 13' N	101°-38' W
Sperm Whale (<u>Physeter catadon</u>)	12	21 March	01°- 10' N	111°-51' W
Grey Whale (<u>Eschrichtius gibbosus</u>)	4	2 April	4 Mi. SW Magdalena Bay	
whale ?	40	2 March	06°- 27' N	104°-55' W
	1	31 March	19°- 42' N	105°-41' W
	1	2 April	23°- 33' N	110°-30' W
Sea Lion (<u>Zalophus californianus</u>)	2	20 February	28°- 11' N	115°-29' W
Sea Otter ? (<u>Enhydra</u>)	1	20 February	28°- 15' N	115°-29' W

TABLE 1. Summary of Daily Observations.

	AREA					Totals
	A	B	C	D	E	
No. Miles	630	390	69	372	535	1996
No. Hours	52.8	41.2	8.6	49.0	45.6	197.2
No. Birds	3467	320	71	207	524	4589
No. Species	28	19	5	14	17	45
No. Flocks	71	6	3	1	5	86

TABLE 2. Abundance of Species Groups by Area.

Species Group	A	B	C	D	E	Total	% of Total Population
Shearwater-Petrel	686	63	19	23	77	868	18.9
Storm Petrel	45	128	48	164	54	439	9.6
Tropicbird	13	8	0	4	16	41	0.9
Pelican	14	0	0	0	0	14	0.3
Booby	1044	38	0	1	0	1083	23.6
Frigatebird	8	1	0	1	0	10	0.2
Shorebird	327	9	4	10	14	364	7.9
Jaeger	33	5	0	0	2	40	0.9
Gull	382	0	0	0	0	382	8.4
Tern	898	68	0	3	361	1330	28.9
Alcid	16	0	0	0	0	16	0.3
Misc.	1	0	0	1	0	2	0.1
TOTALS	3467	320	71	207	524	4589	100.0

TABLE 3. Species Abundance by Areas.

Species	A	B	C	D	E	Total
Pale-footed Shearwater	0	4	0	3	1	8
Pink-footed Shearwater	9	0	0	0	0	9
Wedge-tailed Shearwater	1	41	8	4	18	72
Sooty/Sl.-bill Shearwater	2	0	0	3	2	7
Townsend's Shearwater	484	0	0	0	0	484
Manx Shearwater	180	1	0	0	0	181
New Zealand Shearwater	0	1	0	0	0	1
shearwater sp.	7	0	0	1	0	8
Dark-rumped Petrel	0	0	0	1	2	3
Juan Fernandez Petrel	0	10	5	6	14	35
White-necked Petrel	0	1	0	0	0	1
Phoenix I./Tahiti Petrel	0	1	1	1	4	7
Black-winged Petrel	0	0	0	0	15	15
Bonin Island Petrel ?	0	0	0	0	4	4
Herald's Petrel	0	0	0	0	1	1
White-winged Petrel	0	0	0	0	1	1
Cook's Petrel	1	0	0	0	0	1
<u>Pterodroma</u> sp.	0	2	3	4	1	10
small <u>Pterodroma</u>	0	0	0	0	13	13
shearwater/petrel	2	2	2	0	1	7
Harcourt's Storm Petrel ?	0	8	0	0	0	8
Leach's Storm Petrel	2	41	32	89	14	178
Galapagos Storm Petrel	0	1	0	14	0	15
white-rumped storm petrel	23	77	16	61	36	213
White-throated Storm Petrel	0	0	0	0	3	3
Black Storm Petrel	11	0	0	0	0	11
Fork-tailed Storm Petrel	1	0	0	0	0	1
storm petrel sp.	8	1	0	0	1	10
Red-billed Tropicbird	10	4	0	0	0	14
Red-tailed Tropicbird	0	4	0	3	14	21
White-tailed Tropicbird	0	0	0	0	2	2
tropicbird sp.	3	0	0	1	0	4
Brown Pelican	14	0	0	0	0	14
Blue-footed Booby	25	0	0	0	0	25
Blue-faced Booby	0	2	0	1	0	3
Brown Booby	1012	7	0	0	0	1019
Red-footed Booby	4	27	0	0	0	31
booby sp.	3	2	0	0	0	5
cormorant sp.	1	0	0	0	0	1
Magnificent Frigatebird	5	0	0	0	0	5
frigatebird sp.	3	1	0	1	0	5
Red Phalarope	5	0	3	6	0	14
Northern Phalarope	81	0	0	0	0	81
phalarope sp.	241	9	1	4	12	267
shorebird sp.	0	0	0	0	2	2
Pomarine Jaeger	33	4	0	0	0	37
Parasitic Jaeger	0	1	0	0	2	3
Western Gull	70	0	0	0	0	70
Herring Gull	1	0	0	0	0	1

TABLE 3. Cont.

<u>Species</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>Total</u>
California Gull	35	o	o	o	o	35
Ring-billed Gull	3	o	o	o	o	3
Laughing Gull	240	o	o	o	o	240
<u>Larus</u> sp.	29	o	o	o	o	29
Sabine's Gull	1	o	o	o	o	1
Kittiwake sp.	3	o	o	o	o	3
Sooty Tern	898	68	o	2	348	1316
Fairy Tern	o	o	o	1	13	14
Xantus Murrelet	2	o	o	o	o	2
Cassin's Auklet	13	o	o	o	o	13
Alcid sp.	1	o	o	o	o	1
bird sp.	o	o	o	1	o	1
<hr/>						
TOTALS	3467	320	71	207	524	4589

TABLE 4. Summary of AREA A: COASTAL WATERS

Species	February						March			April		Total
	20	21	22	23	26	27	29	31	1	2	3	
Pink-footed Shear.	0	2	6	0	0	0	0	0	0	1	0	9
Wedge-tail Shear.	0	0	1	0	0	0	0	0	0	0	0	1
Sooty/Sl.-bill Shear.	0	1	0	0	0	0	0	0	0	0	1	2
Townsend's Shearwater	0	0	478	0	5	0	0	0	1	0	0	484
Manx Shearwater	101	2	62	0	1	0	0	0	0	14	0	180
shearwater sp.	0	2	0	0	3	0	1	0	1	0	0	7
Cook's Petrel	0	0	0	0	0	0	0	0	1	0	0	1
shearwater/petrel	0	1	1	0	0	0	0	0	0	0	0	2
Leach's Storm Petrel	0	0	2	0	0	0	0	0	0	0	0	2
wh.-rump storm pet.	0	0	8	2	0	1	6	0	6	0	0	23
Black Storm Petrel	0	0	8	3	0	0	0	0	0	0	0	11
Fork-tailed Petrel	0	0	1	0	0	0	0	0	0	0	0	1
storm petrel sp.	0	4	0	0	1	0	3	0	0	0	0	8
Red-bill Tropicbird	0	0	1	2	2	4	1	0	0	0	0	10
tropicbird sp.	0	0	0	3	0	0	0	0	0	0	0	3
Brown Pelican	13	0	0	0	0	0	0	1	0	0	0	14
Blue-footed Booby	0	0	1	13	0	0	0	11	0	0	0	25
Brown Booby	0	0	2	9	337	88	0	576	0	0	0	1012
Red-footed Booby	0	0	0	0	0	0	4	0	0	0	0	4
booby sp.	0	1	0	0	0	1	1	0	0	0	0	3
cormorant sp.	1	0	0	0	0	0	0	0	0	0	0	1
Magnificent Frigate	0	1	3	0	1	0	0	0	0	0	0	5
frigatebird sp.	0	0	0	0	1	0	2	0	0	0	0	3
Red Phalarope	0	2	3	0	0	0	0	0	0	0	0	5
Northern Phalarope	0	0	0	10	71	0	0	0	0	0	0	81
phalarope sp.	0	0	0	160	56	0	0	16	1	1	7	241
Pomarine Jaeger	0	1	6	0	20	2	3	1	0	0	0	33
Western Gull	66	4	0	0	0	0	0	0	0	0	0	70
Herring Gull	1	0	0	0	0	0	0	0	0	0	0	1
California Gull	21	14	0	0	0	0	0	0	0	0	0	35
Ring-billed Gull	0	2	0	1	0	0	0	0	0	0	0	3
Laughing Gull	0	0	14	0	0	0	1	225	0	0	0	240
Larus sp.	5	17	3	1	3	0	0	0	0	0	0	29
Sabine's Gull	0	0	0	0	0	0	0	0	0	0	1	1
Kittiwake sp.	0	0	0	0	0	0	0	0	0	3	0	3
Sooty Tern	0	0	746	66	6	7	0	70	3	0	0	898
Xantus Murrelet	2	0	0	0	0	0	0	0	0	0	0	2
Cassin's Auklet	13	0	0	0	0	0	0	0	0	0	0	13
Alcid sp.	1	0	0	0	0	0	0	0	0	0	0	1
Total Birds	224	54	1332	284	507	103	22	900	13	19	9	3467
No. Species	8	12	14	8	9	5	7	7	5	4	3	28
No. Hours	8.5	6.6	8.0	4.3	7.1	4.6	5.8	2.0	2.0	2.0	2.0	52.9
No. Miles	102	79	96	52	85	55	69	24	24	24	20	630
Birds/Lin. Mi.	2.20	0.70	13.87	5.46	5.96	9.22	0.32	37.50	0.54	0.80	0.45	5.50

TABLE 5. Summary of Area B: North Equatorial Current Waters.

Species	February		March						Total
	28	29	1	24	25	26	27	28	
Pale-footed Shearwater	0	1	0	1	0	2	0	0	4
New Zealand Shearwater	0	1	0	0	0	0	0	0	1
Wedge-tailed Shearwater	0	1	8	5	7	8	3	9	41
Manx Shearwater	0	0	0	0	0	0	0	1	1
Juan Fernandez Petrel	0	0	3	6	1	0	0	0	10
White-necked Petrel	0	0	0	0	0	0	1	0	1
Phoenix/Tahiti Petrel	0	0	0	0	1	0	0	0	1
Pterodroma sp.	0	0	2	0	0	0	0	0	2
shearwater/petrel	1	0	0	1	0	0	0	0	2
Harcourt's Storm Petrel	5	2	1	0	0	0	0	0	8
Leach's Storm Petrel	0	24	15	1	0	0	0	1	41
Galapagos Storm Petrel	0	0	1	0	0	0	0	0	1
white-rumped storm petrel	7	0	4	31	4	17	14	0	77
storm petrel sp.	0	0	0	0	0	0	1	0	1
Red-billed Tropicbird	4	0	0	0	0	0	0	0	4
Red-tailed Tropicbird	0	0	0	0	1	0	3	0	4
frigatebird sp.	0	0	0	0	0	0	0	1	1
Blue-faced Booby	2	0	0	0	0	0	0	0	2
Brown Booby	7	0	0	0	0	0	0	0	7
Red-footed Booby	16	11	0	0	0	0	0	0	27
booby sp.	2	0	0	0	0	0	0	0	2
phalarope sp.	0	3	2	3	0	1	0	0	9
Pomarine Jaeger	0	2	0	0	0	0	2	0	4
Parasitic Jaeger	0	0	0	0	0	1	0	0	1
Sooty Tern	0	18	3	0	0	3	2	42	66
Total Birds	44	63	39	48	14	32	26	54	320
Number of Species	6	9	7	5	5	6	6	5	19
Number of Hours	5.8	7.3	6.9	4.8	2.5	3.9	4.7	5.4	41.3
Number of Miles	70	27	37	58	30	46	57	65	390
Birds/Linear Mile	0.63	2.37	1.05	0.83	0.47	0.70	0.46	0.83	0.82

TABLE 6. Summary of Area C: North Equatorial Counter-current Waters.

Species	March		Total
	2	3	
Wedge-tailed Shearwater	8	0	8
Juan Fernandez Petrel	4	1	5
Phoenix I./Tahiti Petrel	0	1	1
<u>Pterodroma</u> sp.	0	3	3
shearwater/petrel	2	0	2
Leach's Storm Petrel	27	5	32
White-rumped storm petrel	11	5	16
Red Phalarope	3	0	3
phalarope species	0	1	1
Total Birds	55	16	71
Number of Species	4	4	5
Number of Hours	5.8	2.8	8.6
Number of Miles	36	33	69
Birds/Linear Mile	1.53	0.49	1.03

TABLE 7. Summary of Area D: South Equatorial Current Waters.

Species	March											Total
	4	5	6	7	8	9	10	20	21	22	23	
Pale-footed Shearwater	0	0	0	0	0	0	0	1	0	2	0	3
Wedge-tailed Shearwater	0	0	0	1	0	0	0	0	0	1	2	4
Sooty/Sl.-bill Shear. shearwater sp.	0	0	1	0	0	0	0	2	0	0	0	3
Dark-rumped Petrel	0	0	0	0	0	0	0	0	0	1	0	1
Juan Fernandez Petrel	1	0	0	0	0	0	0	0	0	0	0	1
Phoenix Island Petrel	0	0	0	0	0	0	0	1	0	3	2	6
Pterodroma sp.	0	0	2	0	1	1	0	0	0	0	0	4
Leach's Storm Petrel	11	7	49	0	10	0	0	8	1	2	1	89
Galapagos Storm Petrel	2	1	8	0	0	0	0	0	1	0	2	14
white-rumped storm petrel	4	3	20	14	2	4	0	8	1	4	1	61
Red-tailed Tropicbird	0	0	0	0	0	0	0	2	1	0	0	3
tropicbird sp.	0	1	0	0	0	0	0	0	0	0	0	1
frigatebird sp.	1	0	0	0	0	0	0	0	0	0	0	1
Blue-faced Booby	0	0	0	0	1	0	0	0	0	0	0	1
Red Phalarope	0	1	1	0	0	0	0	3	0	1	0	6
phalarope sp.	0	1	0	0	0	1	0	0	0	0	2	4
Sooty Tern	0	0	0	0	0	0	0	0	1	0	1	2
Fairy Tern	0	0	0	0	0	0	1	0	0	0	0	1
bird sp.	0	0	0	0	0	1	0	0	0	0	0	1

Total Birds	19	14	81	15	14	7	1	25	5	14	12	207
Number of Species	4	4	4	2	3	3	1	6	4	5	7	14
Number of Hours	5.9	5.9	9.7	2.6	5.4	2.6	1.9	6.8	2.2	4.4	1.9	49.3
Number of Miles	39	37	52	31	33	30	22	38	15	53	22	372
Birds/Linear Mile	0.49	0.38	1.56	0.48	0.42	0.23	0.05	0.66	0.33	0.26	0.55	0.56

TABLE 8. Summary of Area E: Central Pacific Water Mass.

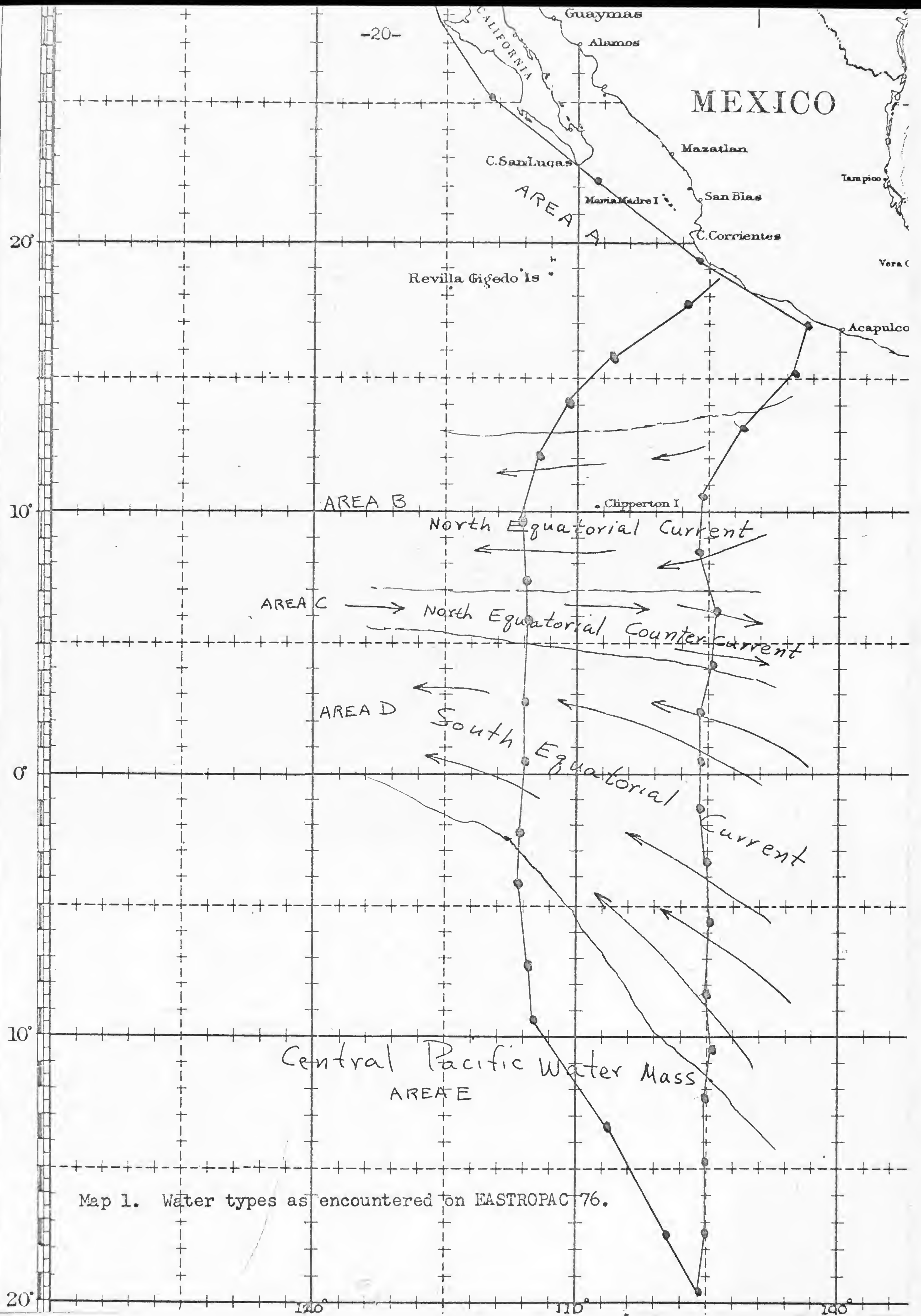
Species	March									Total
	11	12	13	14	15	16	17	18	19	
Pale-footed Shearwater	0	0	0	0	0	1	0	0	0	1
Wedge-tailed Shearwater	0	15	0	1	0	1	1	0	0	18
Sooty/Sl.-bill Shearwater	0	0	0	1	0	0	0	0	1	2
Dark-rumped Petrel	0	0	0	0	0	2	0	0	0	2
Juan Fernandez Petrel	3	1	7	1	2	0	0	0	0	14
Phoenix I./Tahiti Petrel	0	3	0	0	1	0	0	0	0	4
Herald's Petrel	0	0	1	0	0	0	0	0	0	1
Black-winged Petrel	1	1	10	2	0	1	0	0	0	15
Bonin Island Petrel ?	0	0	2	0	0	0	0	2	0	4
White-winged Petrel	0	0	0	0	0	0	0	0	1	1
<u>Pterodroma</u> sp.	0	0	0	0	0	0	0	0	1	1
small <u>Pterodroma</u> sp.	0	9	0	1	3	0	0	0	0	13
shearwater/petrel	0	0	0	0	1	0	0	0	0	1
Leach's Storm Petrel	0	0	0	0	0	0	2	1	11	14
white-rumped storm petrel	3	5	0	0	0	3	4	2	19	36
White-throated Storm Petrel	0	0	0	0	0	1	1	1	0	3
storm petrel sp.	1	0	0	0	0	0	0	0	0	1
Red-tailed Tropicbird	0	0	2	0	5	5	1	0	1	14
White-tailed Tropicbird	0	0	0	0	2	0	0	0	0	2
phalarope sp.	0	0	0	5	2	0	5	0	0	12
shorebird sp.	0	0	0	0	0	0	2	0	0	2
Parasitic Jaeger	2	0	0	0	0	0	0	0	0	2
Sooty Tern	0	300	0	0	1	40	0	6	1	348
Fairy Tern	0	1	5	0	0	0	0	3	4	13

Total Birds	10	335	27	11	17	54	16	15	39	524
Number of Species	4	7	6	5	6	8	5	5	6	18
Number of Hours	3.3	5.5	5.8	4.2	6.2	6.6	7.0	2.4	4.8	45.8
Number of Miles	40	66	69	50	74	79	84	29	44	535
Birds/Linear Mile	0.25	5.08	0.40	0.22	0.23	0.70	0.20	0.52	0.90	0.98

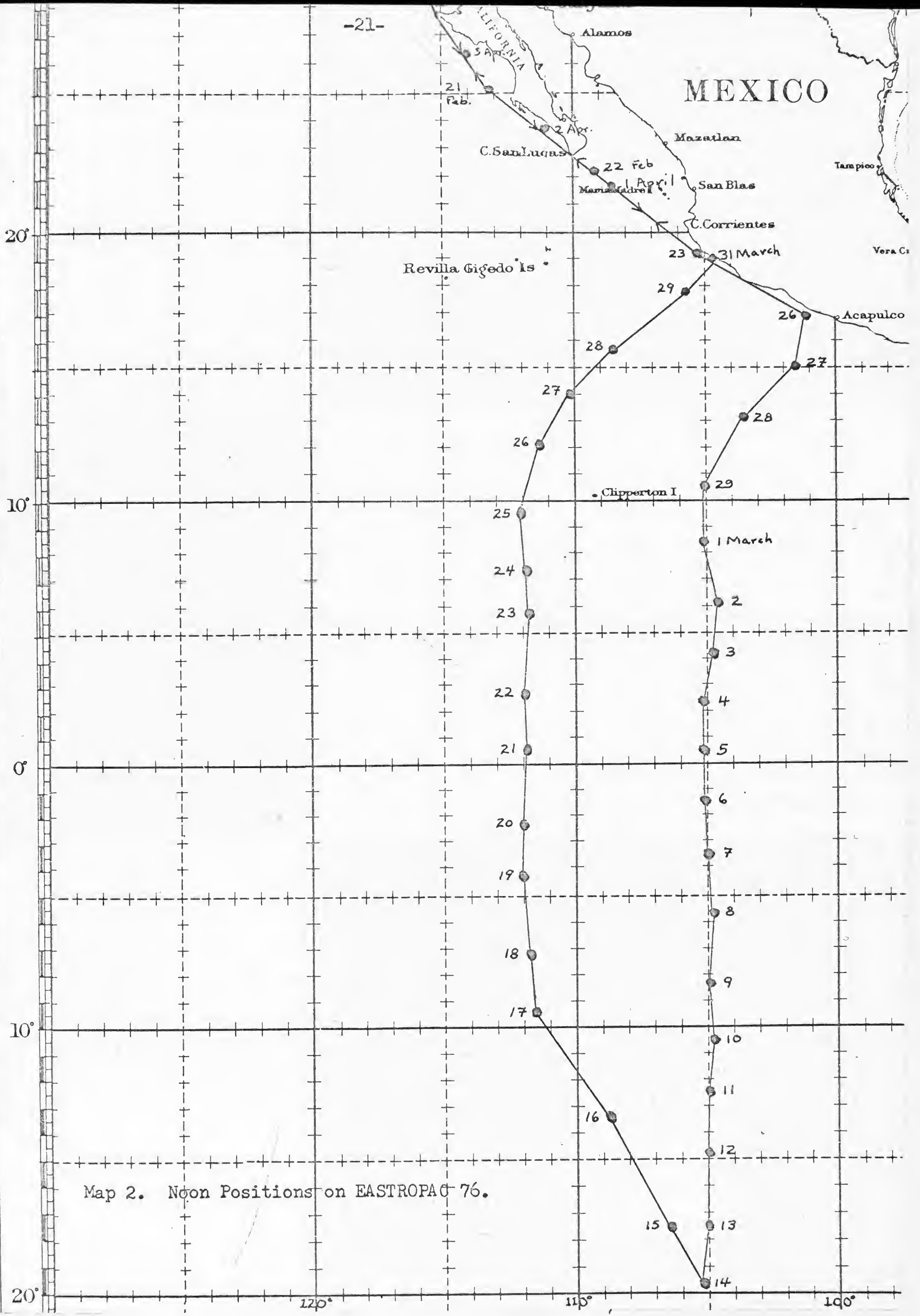
TABLE 9. Specimens Collected on Eastern Area Cruise No. 36.

<u>Species</u>	<u>Number Collected</u>
Wedge-tailed Shearwater (<u>Puffinus pacificus</u>)	1
Townsend's Shearwater. (<u>Puffinus puffinus auricularis</u>)	1
Sooty Shearwater (<u>Puffinus griseus</u>)	1
Slender-billed Shearwater (<u>Puffinus tenuirostris</u>)	1
Juan Fernandez Petrel (<u>Pterodroma externa externa</u>)	2
Dark-rumped Petrel (<u>Pterodroma phaeopygia</u> ?)	1
Leach's Storm Petrel (<u>Oceanodroma leucorhoa</u>) (at least two races)	112
Galapagos Storm Petrel (<u>Oceanodroma tethys</u>)	13
Red-billed Tropicbird (<u>Phaethon aethereus</u>)	1
Red-tailed Tropicbird (<u>Phaethon rubricauda</u>)	5
Red-footed Booby (<u>Sula sula</u>)	1
Magnificent Frigatebird ? (<u>Fregata magnificens</u>)	1
Red Phalarope (<u>Phalaropus fulicarius</u>)	5
Pomarine Jaeger (<u>Stercorarius pomarinus</u>)	1
Laughing Gull (<u>Larus atricilla</u>)	1
Western Gull (<u>Larus occidentalis</u>)	1
Sooty Tern (<u>Sterna fuscata</u>)	<u>1</u>
TOTAL	149

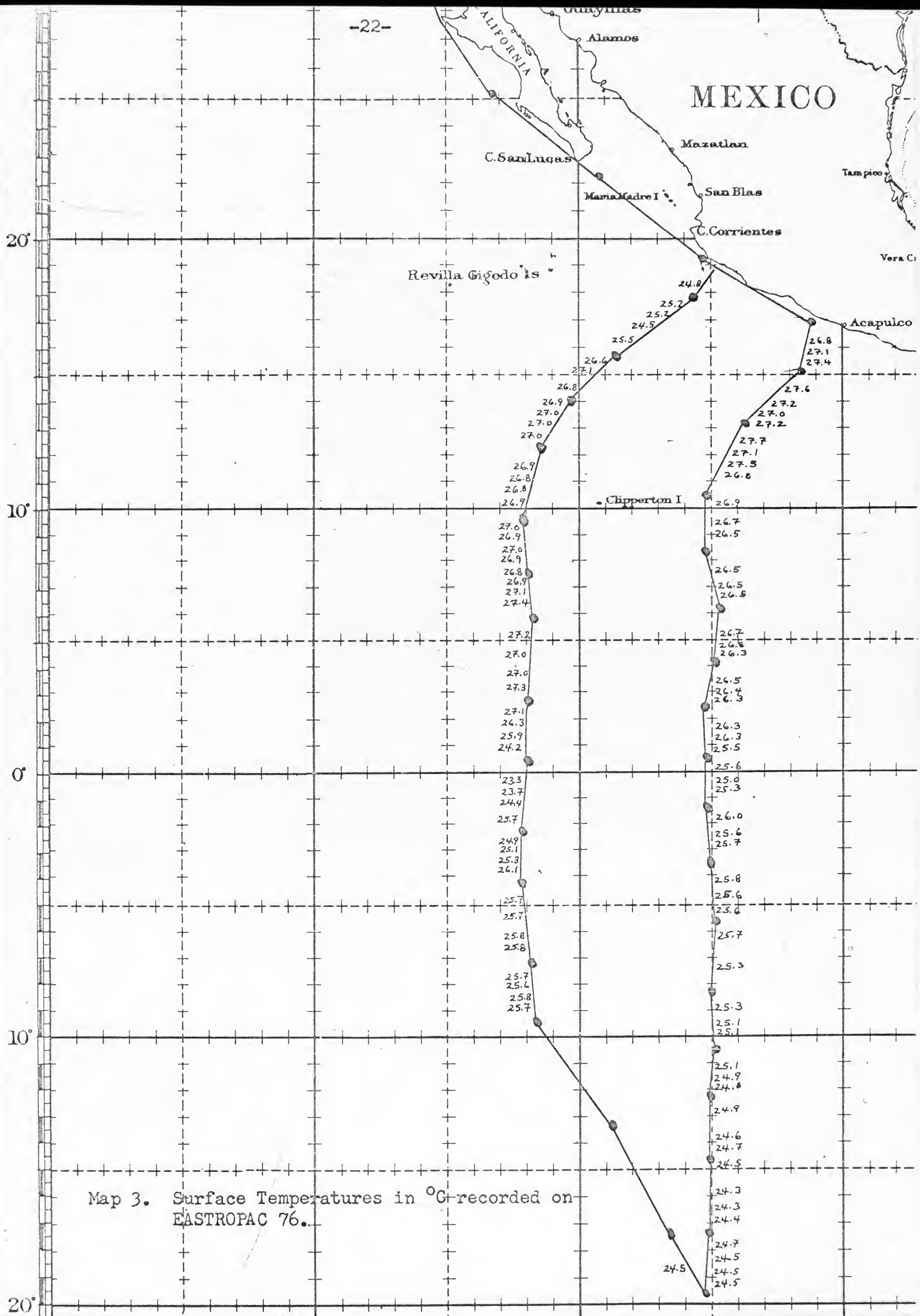
100 of these were prepared as study skins during the cruise;
49 were kept as frozen specimens to be sent to Wash.



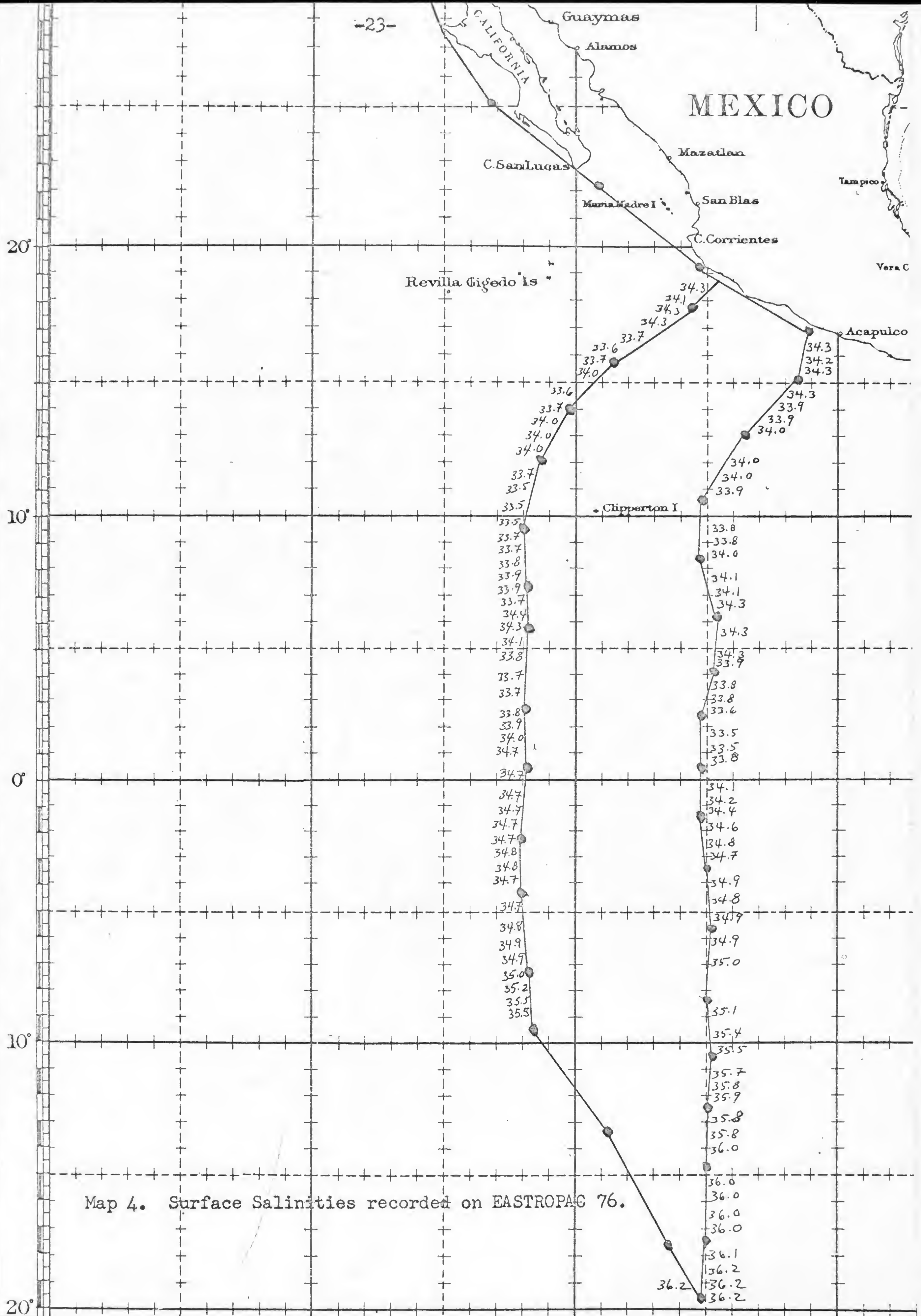
Map 1. Water types as encountered on EASTROPAC 76.

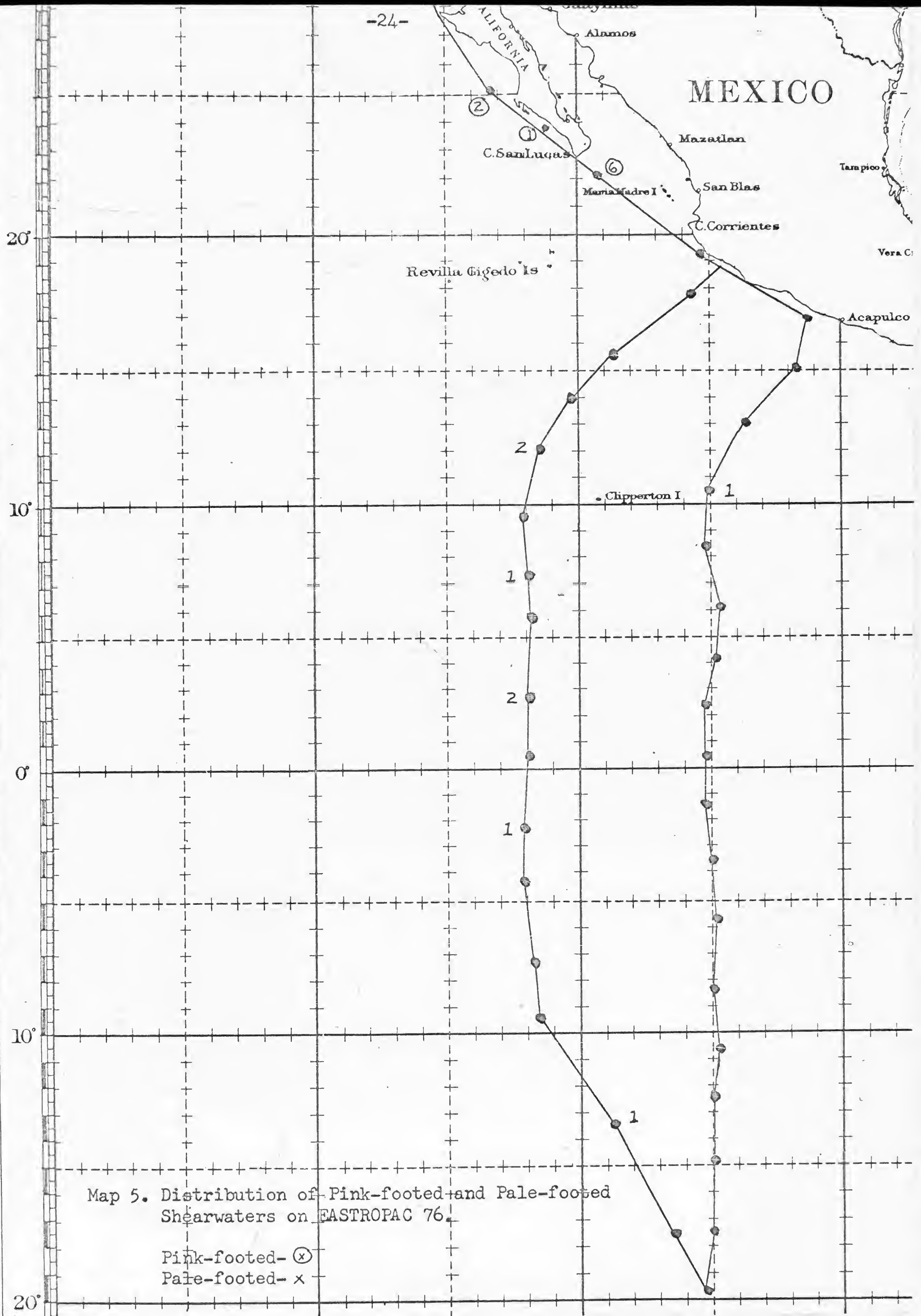


Map 2. Noon Positions on EASTROPAC 76.



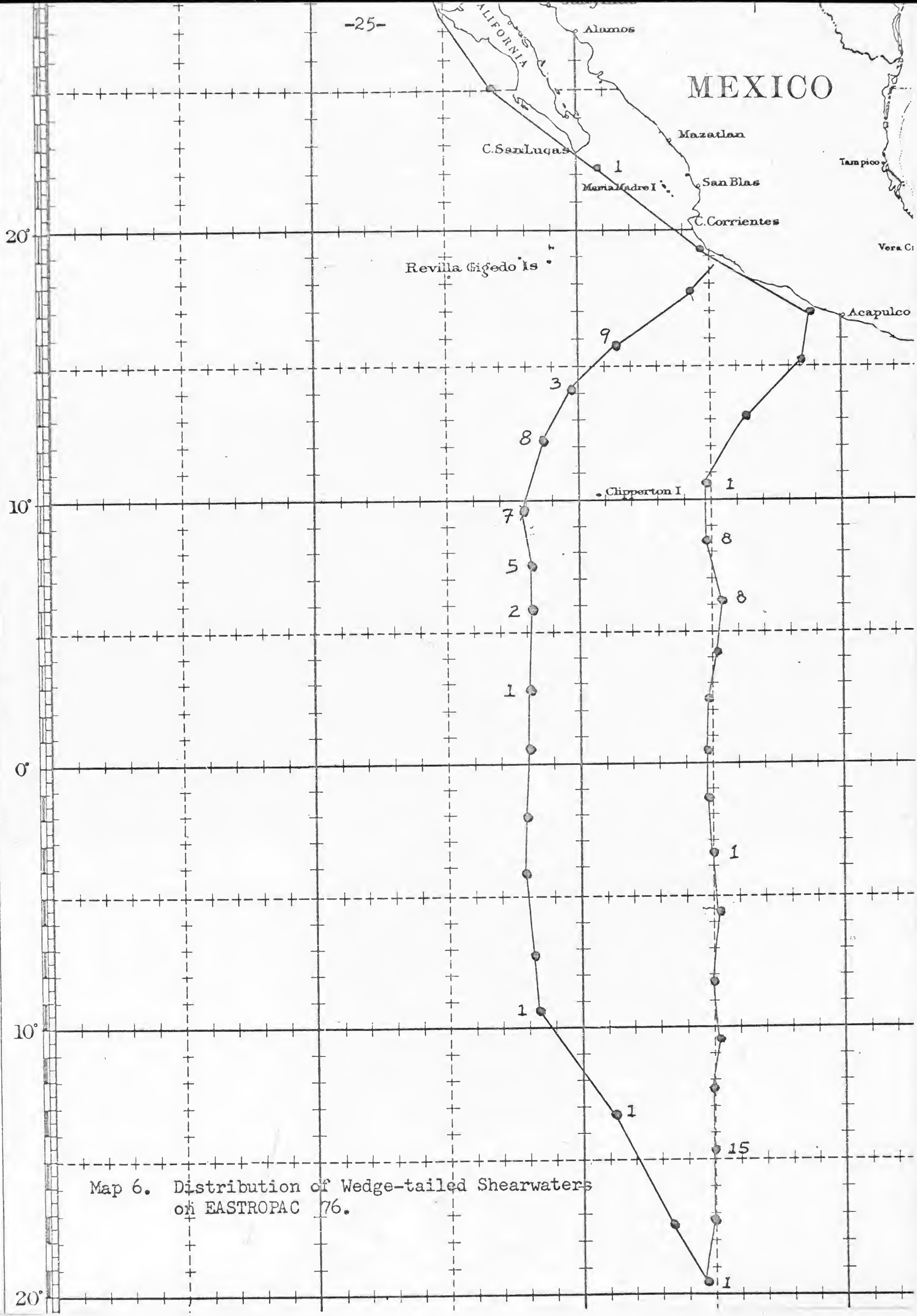
Map 3. Surface Temperatures in °C recorded on EASTROPAC 76.



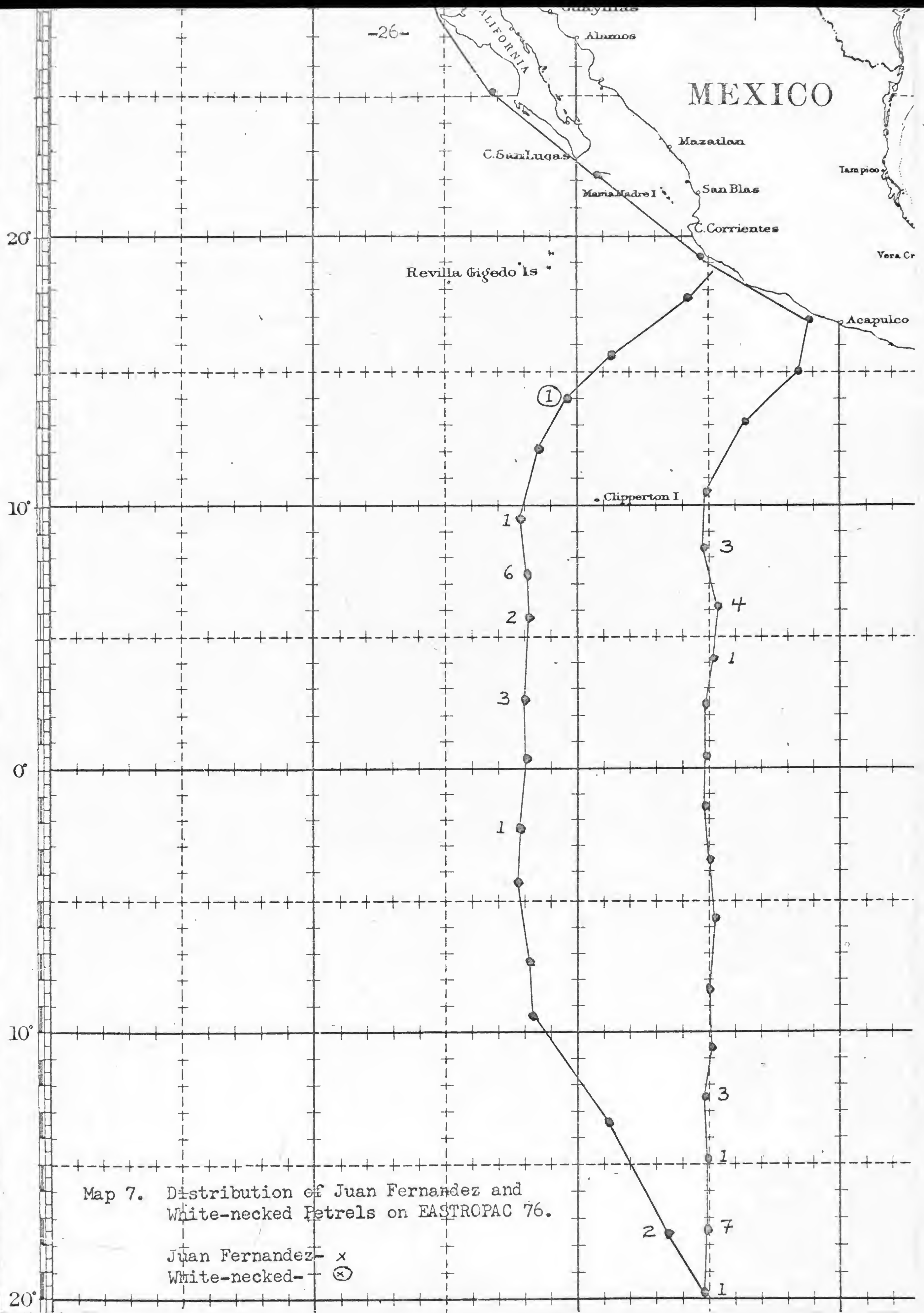


Map 5. Distribution of Pink-footed and Pale-footed Shearwaters on EASTROPAC 76.

Pink-footed- (x)
 Pale-footed- x

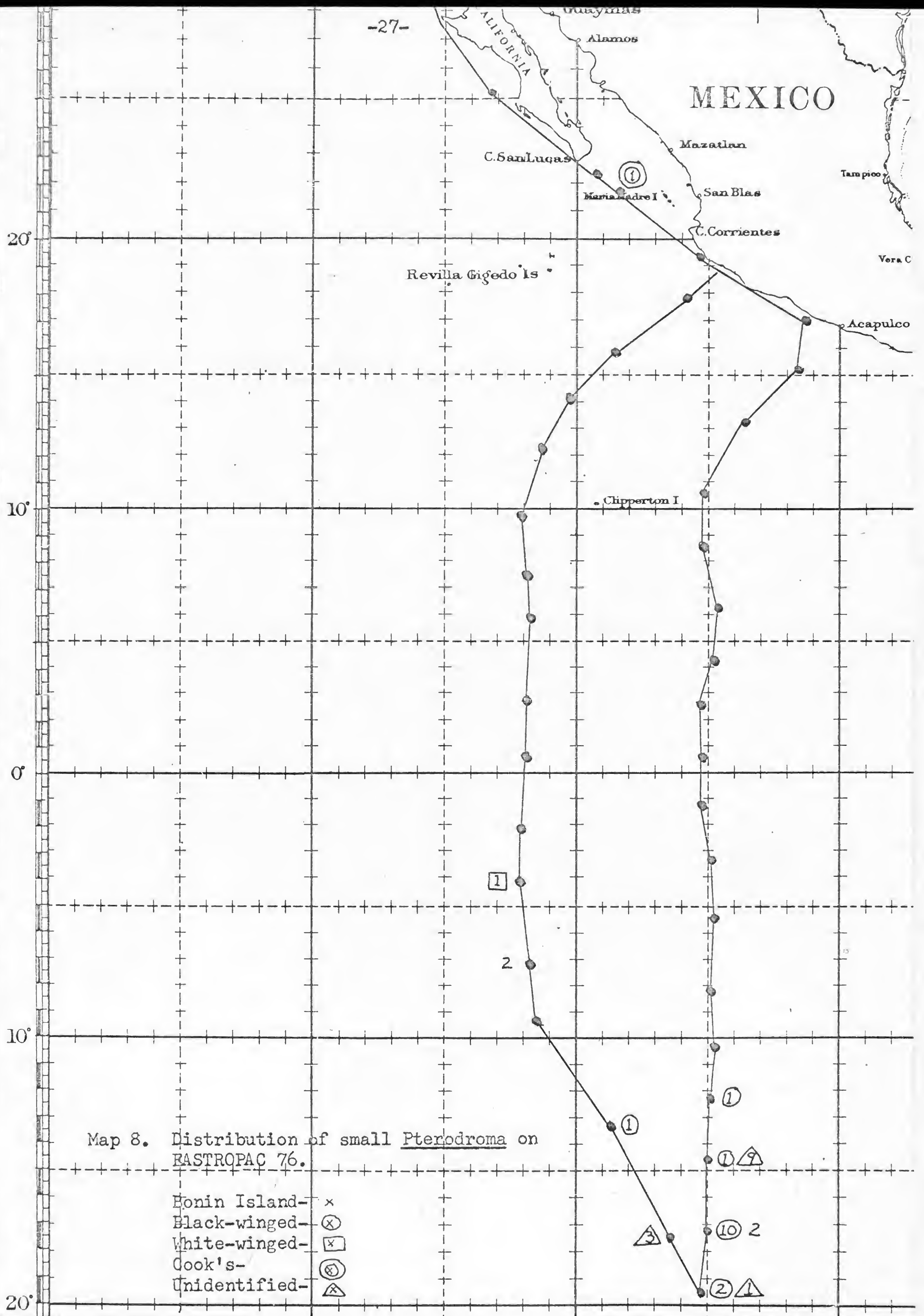


Map 6. Distribution of Wedge-tailed Shearwaters on EASTROPAC '76.



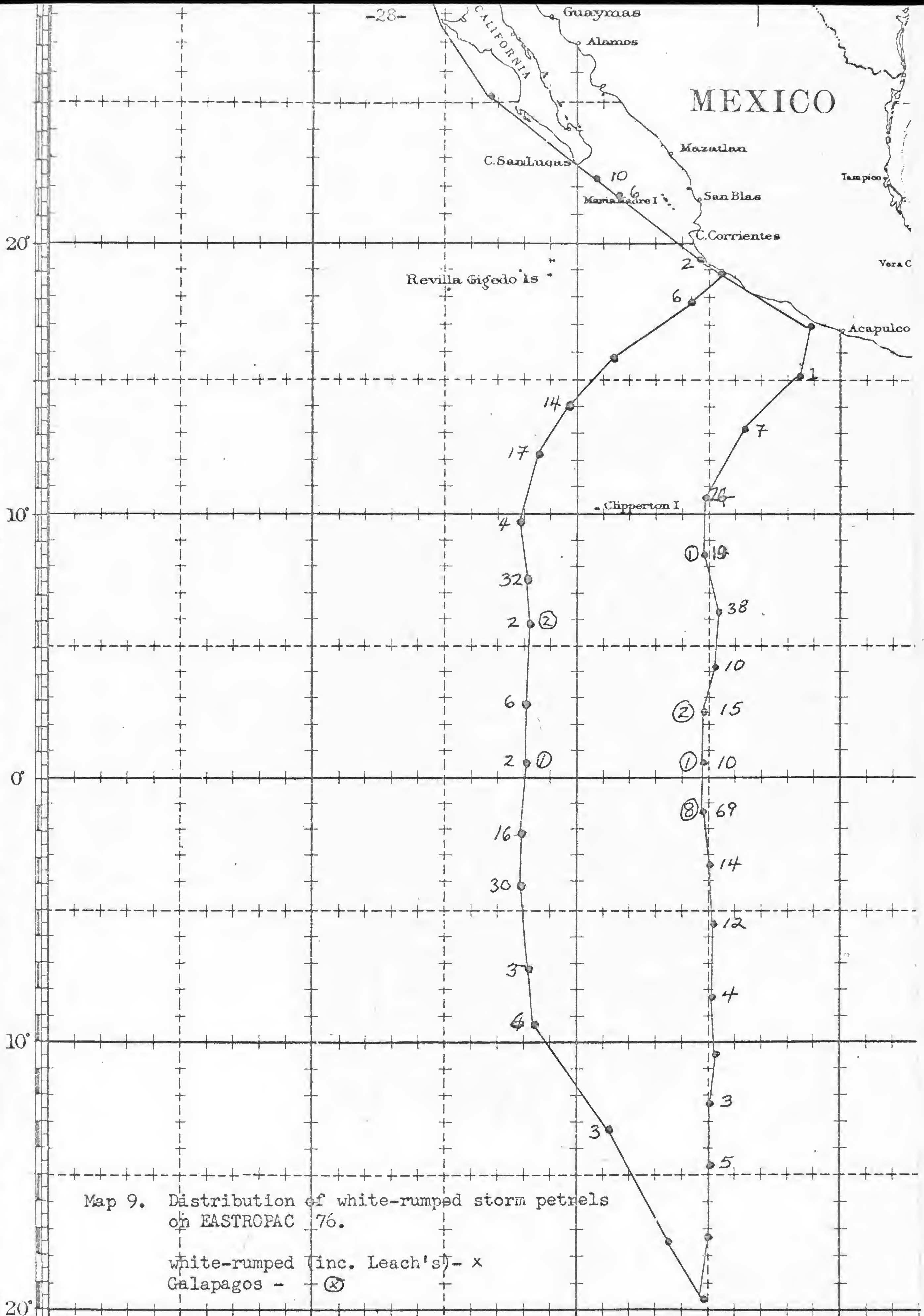
Map 7. Distribution of Juan Fernandez and White-necked Petrels on EASTROPAC 76.

Juan Fernandez- x
 White-necked- (x)



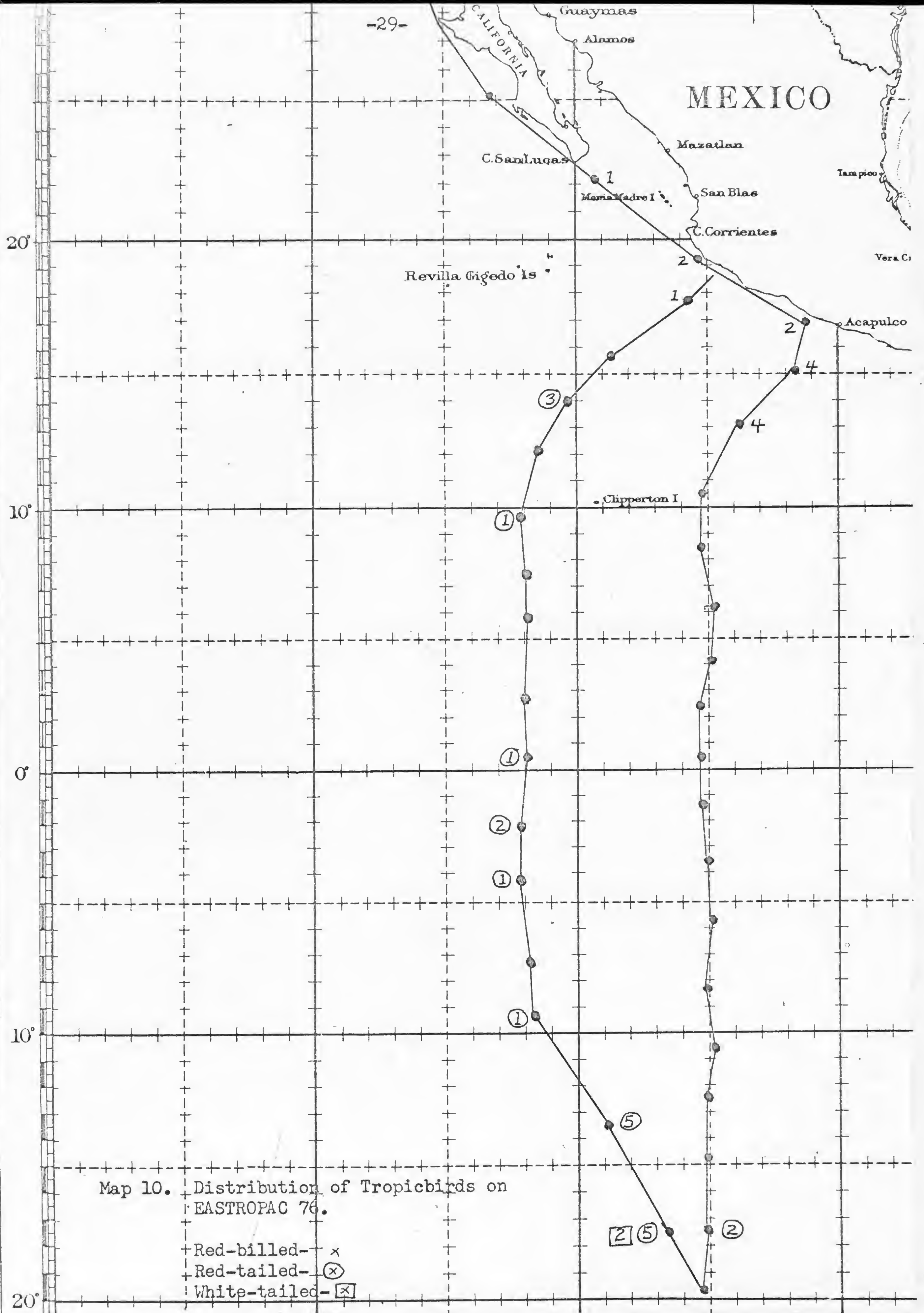
Map 8. Distribution of small *Pterodroma* on RASTROPAC 76.

- Bonin Island- x
- Black-winged- ⊗
- White-winged- ⊠
- Cook's- ⊙
- Unidentified- ⊡



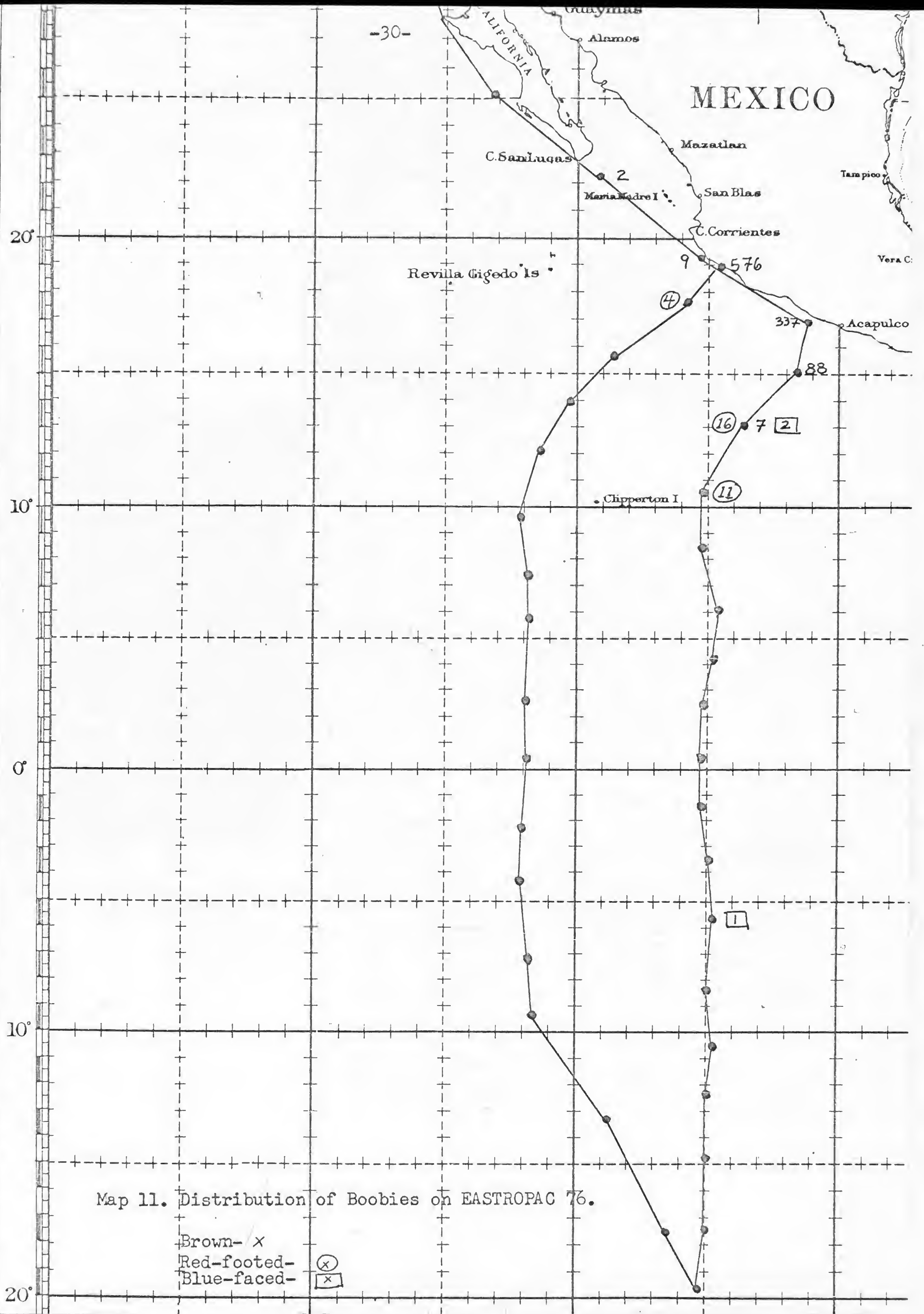
Map 9. Distribution of white-rumped storm petrels on EASTROPAC 76.

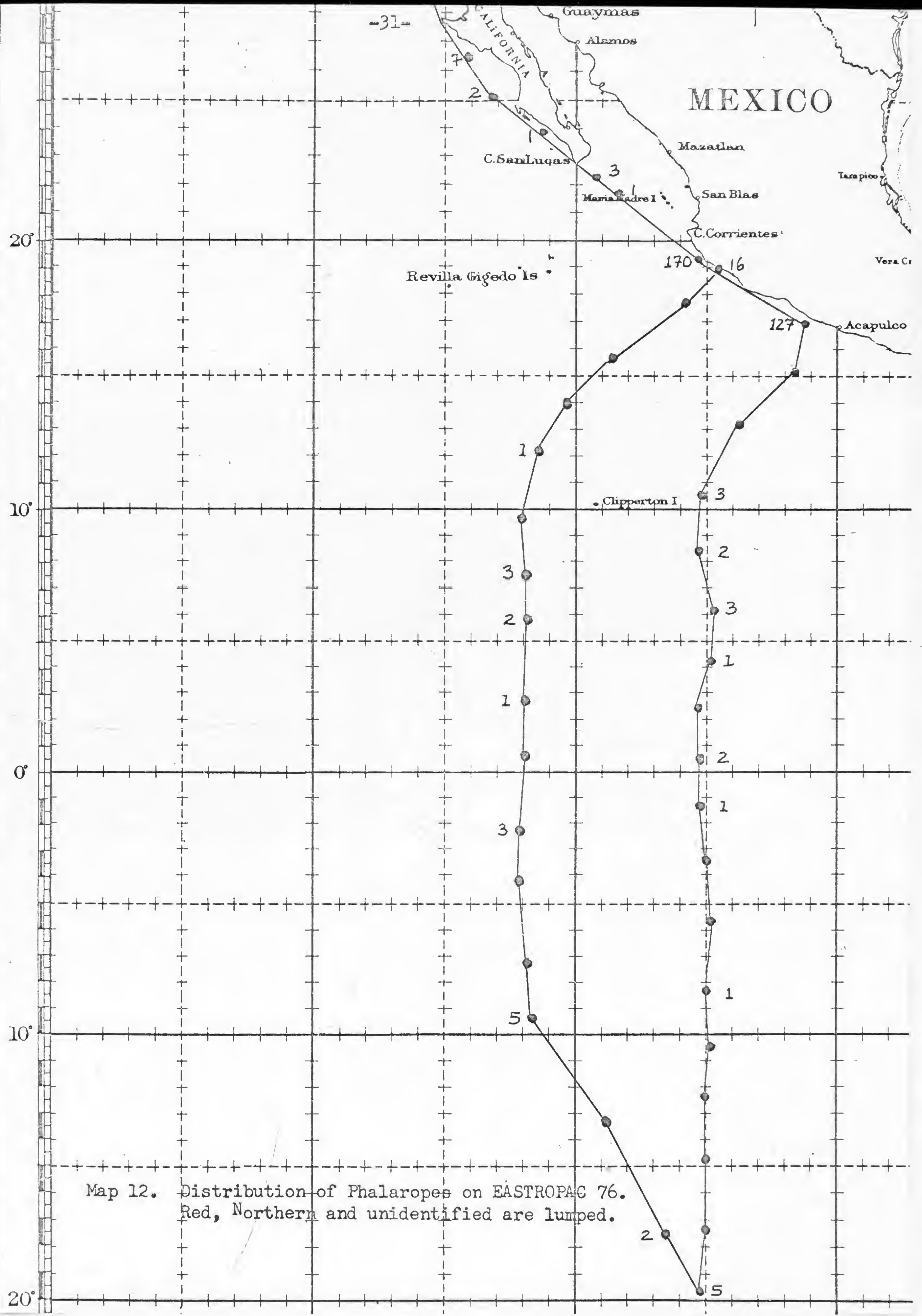
white-rumped (inc. Leach's) - x
Galapagos - (x)



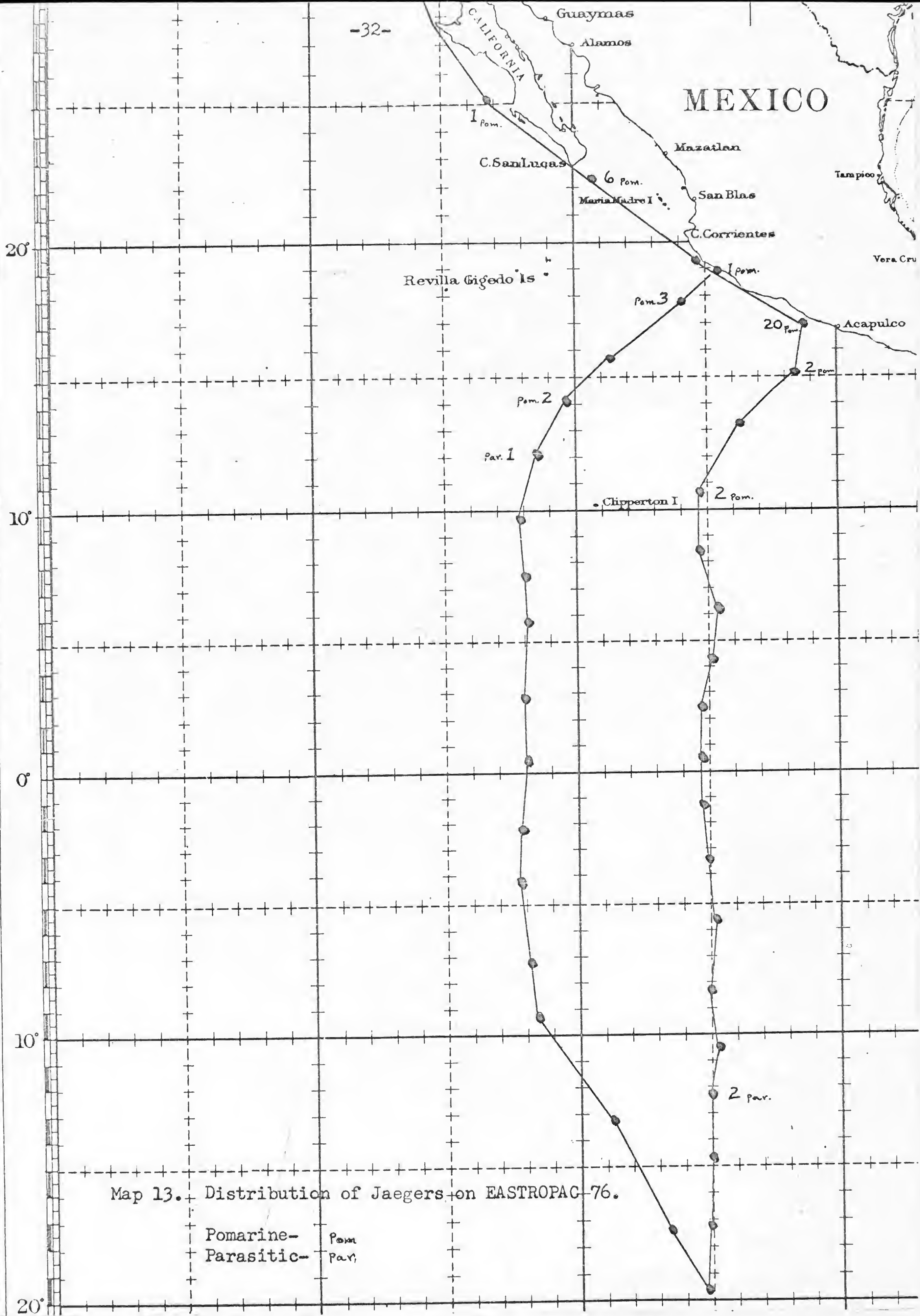
Map 10. Distribution of Tropicbirds on EASTROPAC 76.

- Red-billed- x
- Red-tailed- ⊗
- White-tailed- ⊠



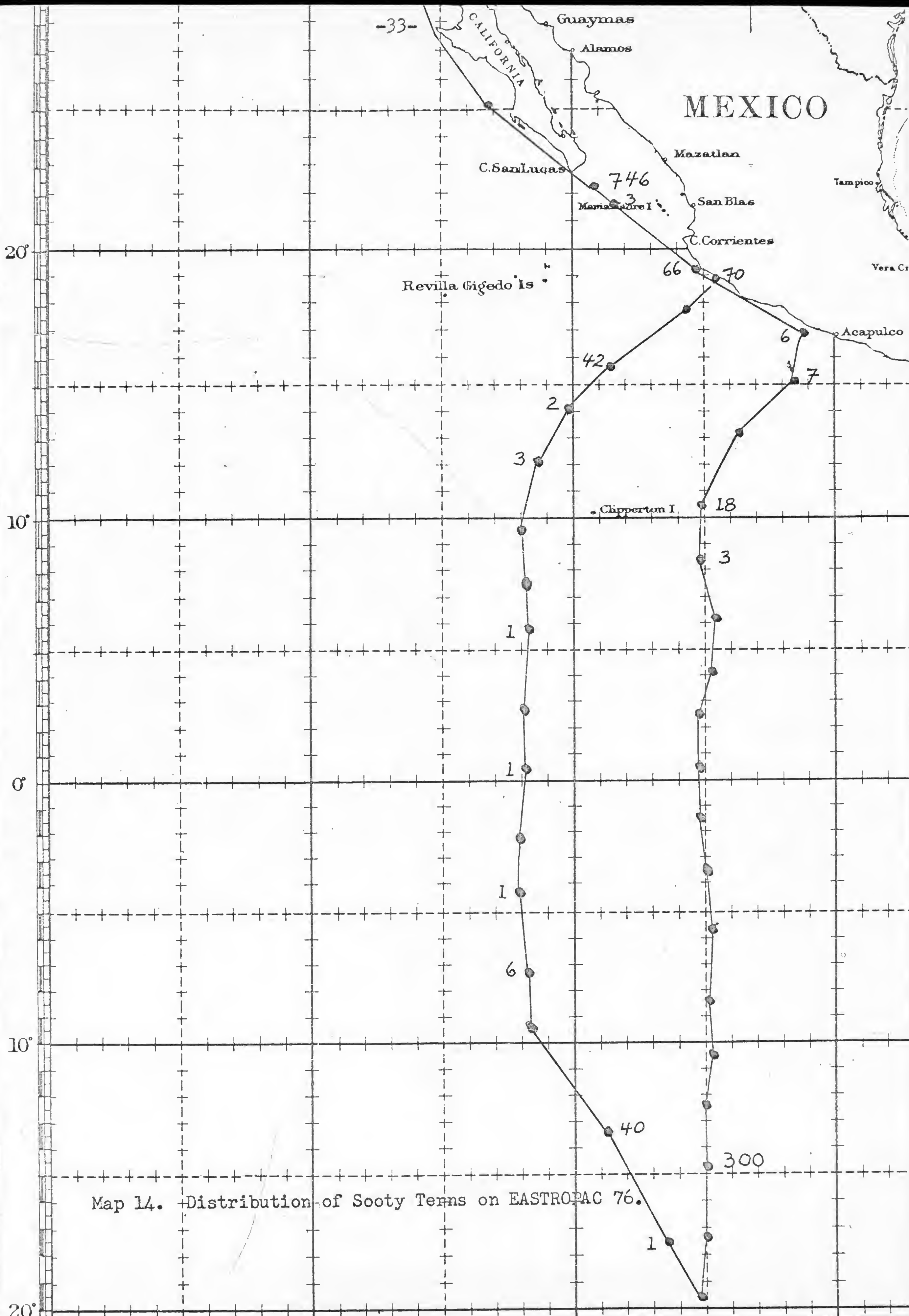


Map 12. Distribution of Phalaropes on EASTROPAC 76. Red, Northern and unidentified are lumped.

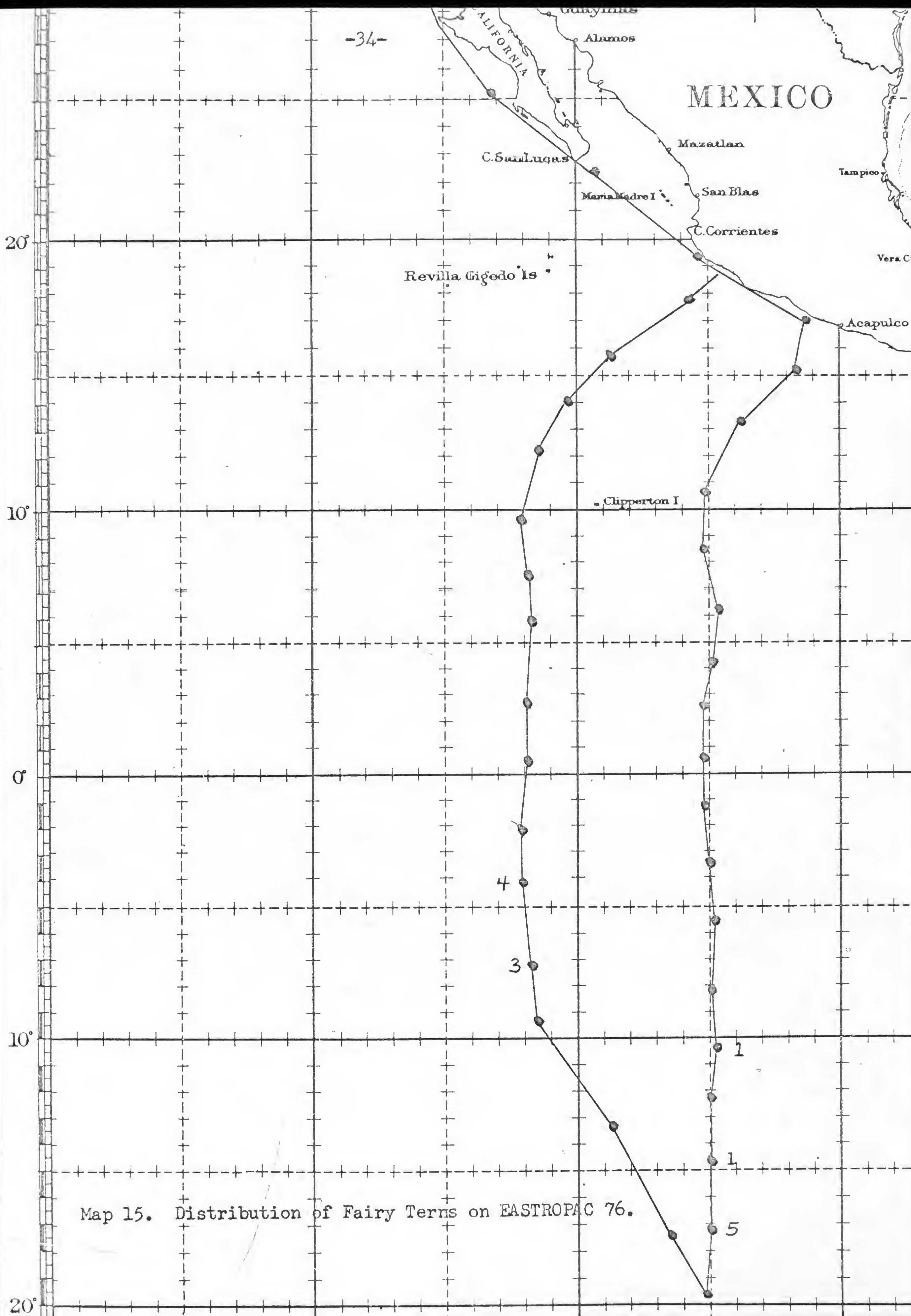


Map 13. Distribution of Jaegers on EASTROPAC-76.

Pomarine-	Pom.
Parasitic-	Par.



Map 14. Distribution of Sooty Terns on EASTROPAC 76.



Map 15. Distribution of Fairy Terns on EASTROPAC 76.

APPENDIX A. Scientific Personnel Aboard the R/V DAVID STARR JORDAN
on EASTROPAC 76.

William Thomas	SIO
John Beers	SIO
Robert Hamilton	SIO
Raymond Shuey	BCF
Gene Stewart	SIO
Kenneth Bliss	BCF
Thomas Blaylock	SIO
Donald Seibert	SIO
Arnold Mantyla	SIO
Tapuni Mulitauopele	BCF
Charles Worrall	SIO
Walter Bryan	SIO
James Coatesworth	SIO
Robert McClendon	BCF
Edward Renger	SIO
Richard Crossin	SI

SIO- Scripps Institute of Oceanography
BCF- Bureau of Commercial Fisheries
SI- Smithsonian Institution

APPENDIX B. Data Collecting Activities on EASTEROPAC 76.

Weather: Basic weather data taken on every station. Surface salinity and temperature recorded continuously throughout the pelagic portion of the cruise by salinograph and thermograph. Sky picture taken every two minutes during daylight hours.

Surface Chlorophyll: recorded continuously.

Plankton Tows: a total of 12 made at intervals throughout the cruise.

Micronekton Net Tows: twice daily (usually noon and midnight).

Temperature and Salinity with Depth: every three hours during pelagic portion of the cruise.

Plankton Pumping: once daily (1st leg of cruise only).

APPENDIX C. Daily Abundance of Flocks (excluding phalaropes).

20 Feb.	1731	Western Gulls	7	circling
	1732	Western Gulls, Manx Shearwater	6	sitting on H ₂ O
	1735	Manx Shearwaters	26	"
	1736	Brown Pelicans	12	traveling
	1755	Manx Shearwaters	11	"
	1832	" "	10	"
	1830	Cassin's Auklets	7	"
21 Feb.	0803	California Gulls	5	following ship
	1036	<u>Larus</u> sp.	9	circling
	1602	mixed <u>Larus</u> sp.	8	"
22 Feb.	1018	Black, Fork-tailed & white-rumped storm petrels	5	following ship
	1630	Sooty Tern, Manx, Townsend & Pink-footed Shearwaters	1000 ⁺	feeding over tuna
	1720	Townsend's Shearwaters	7	traveling
	1744	" "	5	"
	1747	Sooty Tern, Towns. Shear, Pom. Jaeger	25	"
	1755	" " " "	67	"
	1807	" " " "	119	feeding
23 Feb.	0710	Sooty Terns & phalaropes	34	searching
	0750	Sooty Terns	13	traveling
	0755	" "	7	"
	0810	Blue-footed Boobies	9	"
	0859	Sooty Terns	10	"
26 Feb.	0651	Sooty Terns	6	"
	0700	Brown Boobies	19	"
	0703	" "	6	"
	0706	" "	18	"
	0707	" "	5	"
	0709	" "	25	"
	0709	" "	7	"
	0712	" "	7	"
	0712	" "	14	"
	0713	" "	12	"
	0714	" "	11	"
	0718	" "	7	"
	0718	" "	13	"
	0722	" "	5	"
	0735	" "	7	"
	0730	" "	6	"
	0751	" "	16	"
	0807	" "	7	"
	0813	" "	13	"
	0842	" "	9	"
	0847	" "	9	"
	1535	" "	9	"
	1538	" "	7	"
	1541	" "	11	"
	1553	" "	11	"

APPENDIX C cont.

26 Feb.	1607	Brown Boobies	16	traveling
	1615	Townsend's Shearwaters	5	"
	1629	Brown Boobies	17	"
	1709	Pomarine Jaegers	13	feeding on garbage
27 Feb.	0642	Sooty Terns	7	traveling
	0650	Brown Boobies	6	"
	0651	" "	5	"
	0652	" "	13	"
	0701	" "	6	"
	0708	" "	8	"
	0817	" "	8	"
	0938	" "	5	"
	1457	" "	7	"
28 Feb.	0922	Harcourt's Storm Petrels ?	5	sitting on H ₂ O
	1440	Red-footed Boobies	5	following ship
29 Feb.	0704	Sooty Terns	15	traveling
2 March	1400	Leach's Storm Petrels	5	over oil slick
	1420	" " "	5	" " "
	1500	" " "	7	" " "
6 March	1755	white-rumped storm petrels	5	traveling
11 March	0749	Juan Fernandez Petrel, Parasitic Jag.	5	sitting on H ₂ O
12 March	0725	Sooty & Fairy Terns, Wedgetails, Phoenix I/Tahiti Pet., small Pterod.	326	feeding over tuna
13 March	0840	Fairy Tern, Juan Fernandez, Black- wing, Bonin Is. ?, Herald's Petrels	21	traveling
16 March	0915	Sooty Terns	39	feeding over flying fish
18 March	1525	Sooty and Fairy Terns, Bonin Is. Pet.	9	feeding over tuna
26 March	1435	Sooty Terns, Wedgetails	5	traveling
27 March	0836	white-rumped storm petrels	5	"
28 March	1505	Sooty Terns, Wedgetails	46	feeding over tuna
31 March	1300	Sooty Terns, Blue-footed & Brown Boobies, Laughing Gull	720	feeding over sailfish
	1307	Sooty Terns, Brown Boobies	23	feeding over shark
	1315	Brown Boobies	8	feeding over sailfish
	1317	" "	6	sitting on H ₂ O
	1322	" " , Laughing Gulls	42	feeding over fish
	1342	" "	9	traveling
	1655	Sooty Terns	6	"
	1712	Sooty Terns, Brown Boobies, Pom. Jaeg.	59	feeding

4-3-68 David Starr Jordan Trip 76

Sunrise 0620 Position 25°30' 113°00'

Sunset 1853 Position 27°01' 114°19'

Time	Lat	Long	Wind	Sea
0600	25-27	112-59	310-22	310-6
0700	25-34	113-05		
0800	25-41	113-10	↓	↓
0900	25-46	113-17	310-12	310-5
1000	25-52	113-24		
1100	25-54	113-28		
1200	26-04	113-35		
1300	26-12	113-41		↓
1400	26-20	113-48		310-3
1500	26-28	113-55		
1600	26-36	114-01		
1700	26-44	114-07		
1800	26-54	114-15		
1900	27-02	114-20	↓	↓

Fill in for non-BT periods

25c

(DO NOT FILL IN SHADED AREAS AT SEA)

SHEET 9 OF 9 SHEETS

BT AND ENVIRONMENT

0	1	0	2
---	---	---	---

BT INSTRUMENT NO.

Expendable BTs

TIME ZONE:

No #s

+7

VESSEL

Totter

0	3	2
---	---	---

CRUISE NO.

0	0	0	4
---	---	---	---

LOCAL MONTH

0	3
---	---

LOCAL YEAR

6	8
---	---

LOCAL DAY	LOCAL HOUR	OCTANT	LATITUDE	LONGITUDE	BT SLIDE NO.	THERMO-CLINE DEPTH (M)	SURFACE TEMP. (°C)	SURFACE SALINITY BOTTLE NO.	10 METER TEMP.	WIND		BAROM.	WEATHER	SEA	VISIB.	SUR. OX.		SUR. PHOS.		M	CL.	AIR TEMP.				REL. HUM.		WAVE DIR.		
										DIRECT.	SPEED					54	55	56	57			58	59	60	61	62	63	64	65	66
14	1800	6	19°42'	050°00'			24.5			09	15	21.0	137										1	24.0	21	09				
20	1200	6	02°30'	120°00'			25.0			06	07	10.0	209										1	24.5	24	06				

RSC

(DO NOT FILL IN SHADED AREAS AT SEA)

SHEET 3 OF 9 SHEETS

BT AND ENVIRONMENT

03	
0	1
0	2

BT INSTRUMENT NO.

Expandable BTs

TIME ZONE:

No #5

+7

VESSEL Jordan

3	4	5
0	3	2

CRUISE NO.

8	7	6	5
0	0	0	4

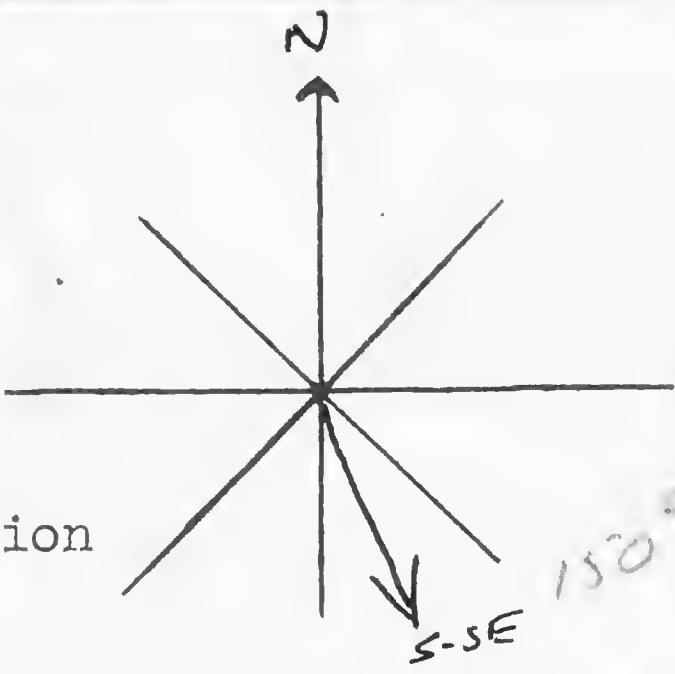
LOCAL MONTH

10	11
0	3

LOCAL YEAR

14	15
6	8

LOCAL DAY	LOCAL HOUR	OCTANT	LATITUDE	LONGITUDE	BT SLIDE NO.	THERMO-CLINE DEPTH (M)	SURFACE TEMP. (°C)	SURFACE SALINITY BOTTLE NO.	10 METER TEMP.	WIND		BAROM.	WEATHER	SEA	VISIB.	SUR. OX.		SUR. PHOS.		M	CL.	AIR TEMP.		REL. HUM.		WAVE DIR.	
										DIRECT.	SPEED					54	55	56	57			58	59	60	61	62	63
08	02	39	60442	0458			256	34.8		14	10	13	01	38								5	25	7	24	14	
08	08	59	60526	0457			256	34.9		13	13	15	01	58								2	26	3	20	14	
08	21	00	60612	0458			257	34.8		11	03	15	01	38								1	26	5	24	11	
09	09	18	60803	0500			253	35.0		10	03	16	01	38								2	25	5	21	14	
09	21	16	60847	0458			253	35.1		11	10	16	01	39								1	26	0	22	11	
10	02	42	60924	0501			251	35.3		11	15	15	01	39								3	25	0	25	11	
10	08	42	61013	0503			251	35.4		13	17	17	01	59								1	25	7	22	14	
10	21	04	61053	0458			251	35.6		13	13	16	01	39								1	24	0	21	13	
11	02	38	61130	0458			249	35.8		12	08	15	01	39								5	25	2	22	12	
11	08	43	61216	0458			248	35.8		11	18	18	01	58								6	25	4	21	12	
11	21	05	61305	0500			249	35.8		12	15	17	01	38								3	24	9	24	12	
12	04	58	61404	0454			246	35.8		11	14	15	01	47								2	23	2	22	10	
12	10	32	61449	0500			247	35.9		10	18	18	01	48								2	26	0	22	10	
12	17	05	61531	0501			245	35.9		10	05	09	03	48								6	25	8	22	12	
12	23	39	61608	0501			243	35.9		14	14	18	01	38								3	24	1	23	14	
13	04	59	61643	0501			243	35.9		11	20	16	01	58								2	23	8	23	10	
13	10	07	61722	0501			244	36.0		13	06	19	01	58								6	22	0	22	12	
13	16	52	61754	0502			247	36.1		12	19	17	01	68								5	25	1	20	12	
13	23	13	61843	0503			245	36.1		11	12	20	01	38								2	25	0	20	11	
14	04	55	61901	0503			245	36.2		11	14	18	01	38								3	23	8	22	11	
14	10	16	61940	0504			245	36.2		10	06	21	01	58								2	24	6	21	11	



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

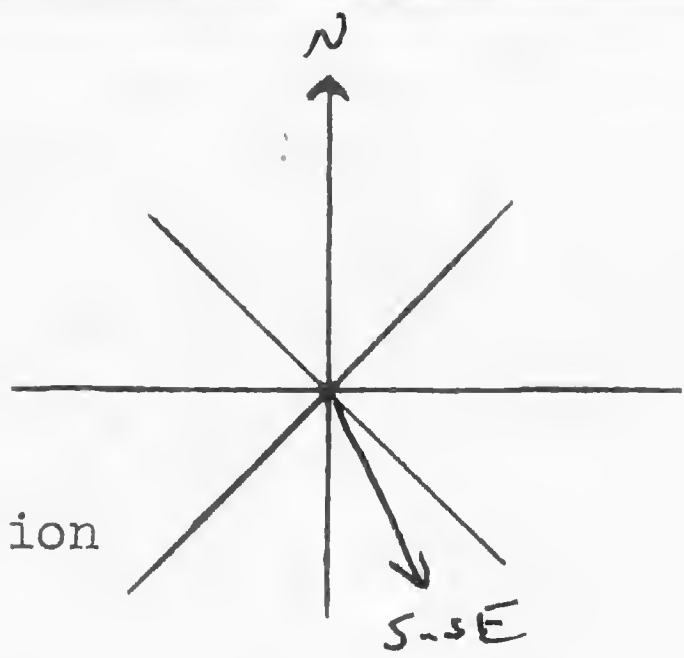
Crossin

Date 20 Feb 1968
Pg.# 1

SPECIMEN or + 7 Time

TIME SPECIES # DIR. BAND NO. REMARKS

0700					Begin obs., sky heavily overcast, following sea.
0721					imm. = 1st year bird; western-Herring-cal. size.
0733	Larus sp.	1	W		split for breakfast.
0740					resume watch.
0752					close in.
0758	Xantus Warb.	1	E		ad.
0801	West. Gull	1	W		ad.
0803	" "	1	W		ad. came in from W to check a box + garbage dumped from ship.
0807	" "	1	W		ad. circling ship.
0815	" "	1	W		ad's.
0819	" "	2	W		landed on H ₂ O - not Herring by size. ad.
0829	Calif. or Ring-bill Gull	1			ad's following ship, picking up garbage.
0836	West. Gull	2			joined 2 westerns, ad. (still showing few dark feathers on head -
0839	Calif. Gull	1			Ad joined 2 West Ad's + Calif. ad., all 4 circling ship.
0843	West Gull	1			ad. came from E, joined others.
0847	" "	1			2nd year bird - joined others.
0848	Calif. "	1			ad's, joined others.
0855	West. Gull	2	W		imm. large, prob. Herring or West.
0905	Larus sp	1	W		ad's circled ship once.
0917	West. Gull	3	W		ad.
0928	" "	1	W		ad's came from E.
0935	Calif Gull	2	W		ad's
0935	West Gull	3	W		Now very difficult to determine when new birds are coming in. Ca. 15 ± 3 birds are to be seen behind + off to west side of ship. only when birds can be seen coming in from the E (shoreward) are they counted. That the same birds are following ship can be determined by oddly marked subad. (ad. with a few dark head feathers etc) birds which keep reappearing
0955	Herring Gull	1	W		2nd yr. bird.
1005	West. Gull	2	W		ad's.
1012	Calif. Gull	3	W		2 ad's, 1 barely ad. showing brownish feathers on neck and one dark feather in tail. greenish legs on all.
1015	" " ?	1	W		2nd year bird.
1019	West. Gull	1	W		1st yr. bird.
1033	Calif. "	1	W		ad. from shoreward, joined ship followers.
1045					1st flying fish
1112	West Gull	1	W		2nd yr. bird.
1119	Larus sp.	1	W		1st yr. bird. large, prob. west.
1137	alcid sp.	1	E		dark above, pale below, but not sharply separated, prob. Cassin's auklet.



SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Crossin

Date 20 Feb. 1968
Pg. # 2

SPECIMEN +7 time

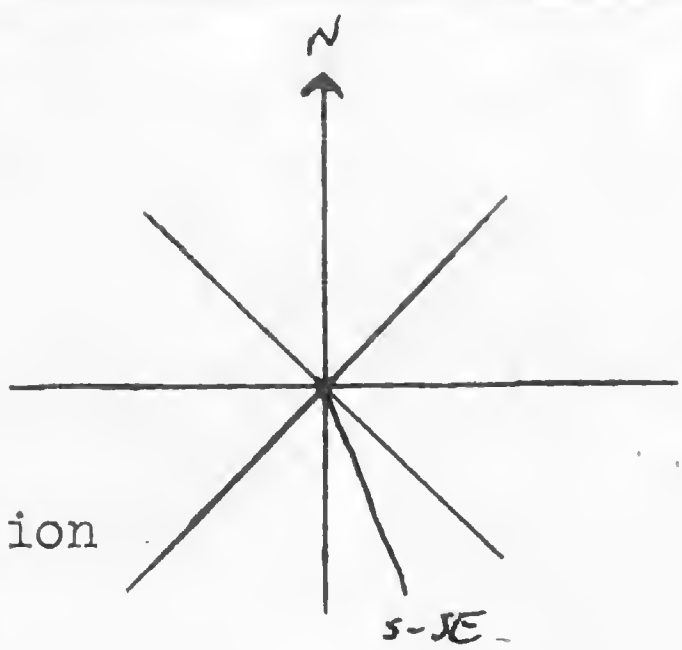
or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
1145					split for lunch.
1200					resume obs. roughly between 10-20 gulls
1220	West Gulls				still periodically following ship. At times the birds land on the, at times small groups circle high out front like vultures.
1250					two of following flock perching on crossboom over Ad's. Pintail. Numbers of followers starting to thin down somewhat.
1315					following gulls now down to 3-4 birds.
1317	Xantus Murr.	1	E		some sun breaking thru cloud cover last hr.
1319	West Gull	1	W		move or less headed in direct flight.
1400					2nd yr. bird.
1600					close obs.
1601	West Gull	1	ce		open obs.
1602	West or Herring Gull	1	ce		ad.
1610	West Gull	1	ce		1st yr. bird.
1618	" "	1	ce		ad. joins 2 already circling ship
1620	" "	1	W		" " 3 " " "
1627	" "	1	ce		ad, but still showing considerable brown in upper wings.
1628	" "	1	ce		mid-dorsal all grey as in full ads. one or two dark tail feathers.
1633	Calif. Gull	1	ce		2nd yr. bird? mid-dorsal grey of ad. rest of plumage mottled in dark areas.
1645					ad., greenish legs.
1705					split for supper return from "
1705					Islas San Benitos ahead.
1706	Manx Shear	3	N		
1718	" "	1	N		
1726	" "	1	W		
1727	Calif. Gull	1	N		subad - some brown on head + neck.
1728	West Gulls	4			out from island - 3 ads, 1 2nd yr. bird.
1728	Cormorant Sp.	1	N		all dark.
TF 1731	West Gull	7	ce		ad's widely circling
SF 1732	West Gull	4			on the ads
	Manx Shear	2			
1734	Manx Shear	1	N		
SF 1735	Manx Shear	26			on H2O
TF 1736	Br. Pelican	12			W to island.
1737	Manx Shear	1	N		

OBSERVERS:

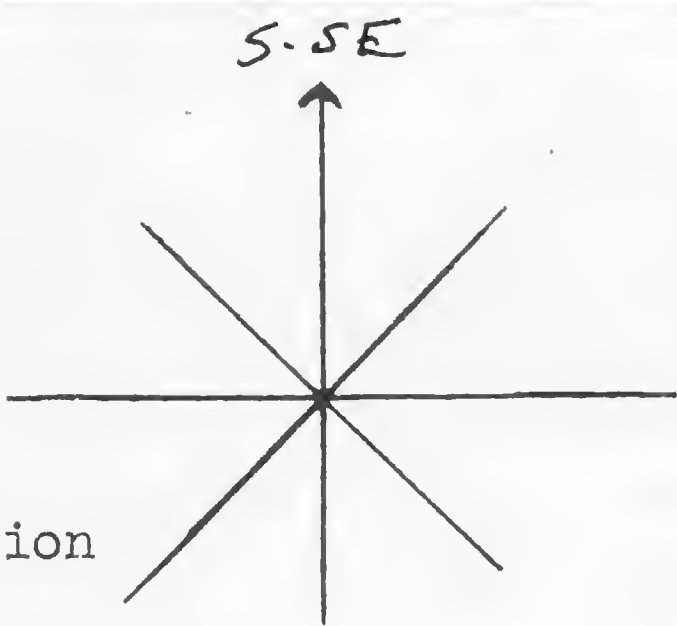
Crossin

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

+7 time

Date 20 Feb. 1968
Pg.# 3

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
1738	West Gull	21			80% ad's, not a flock, scattered birds all about.
1738	Calif. Gull	3			ad's, scattered.
1741	Manx Shear.	4			on H ₂ O
1742	Br. Pelican	1	N		
1743	Manx Shear	2	W		
1745	" "	1	W		
1745	Calif Gulls	7	on		not a flock, scattered birds. ad's. This is somewhat of an assumption that all are Calif. + not Herring or King bills, but all seen near ship have had typical greenish less of Calif's.
1747	Manx Shear	1	W	island	
1749	" "	2	W		
1750	" "	3	W		
1753	" "	2	W		
TF 1755	" "	11	W		
1755					sea otter or fur seal, I tend to believe otter as it appeared to turn over + glide along with ventral up once, about 6' long.
1758	Manx shear	4	W		
1759	" "	2	W		
1759					another of above mammals, but further out and could only see head occasionally.
1800	Manx Shear	1	W		
1806	" "	3	NW		
1807	" "	1	E		
1808	" "	3	W		
1811					Cedros Island well in view to SE
1815	Manx Shear	1	W		
1816	" "	1	W		
1817	" "	3	N		
1818	" "	3	SE		
1818					Fur seal, ca. 7' long, leaped completely out of H ₂ O a few times; tail visible close up. brown w/ lighter blonde head. pos. flipper = tail region
1820					another seal.
1821	Manx Shear	1	NW		
TF 1822	" "	10	SE		
1823	" "	5	NW		
1825	Cassin's Auklet	2	N		flew from H ₂ O
1826	" "	4	N		
1827	Manx Shear	2	SE		
TF 1830	Cassin's Auklets	7	N		
1837					Sunset - cease obs.



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Crossin

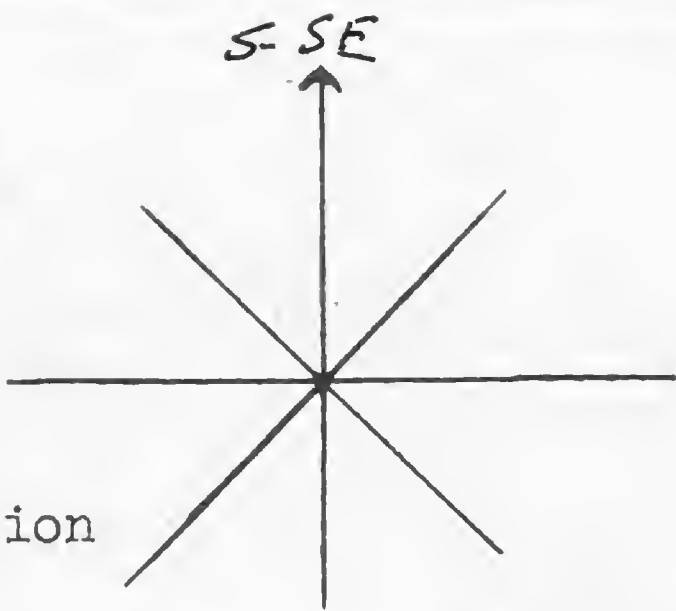
Date 21 Feb. 1968
Pg.# 1

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0730					Begin obs.
0738	storm Petrel sp.	1	E		appeared all dark, but moving right into sun. fast flying
0744	" "	1	E		" " "
0747	" "	1	all		this one appeared more brownish dorsally, no white rump patch.
0749	shear-Pet	1	SW		way out, white below, contrasting dark - mid-size pterodroma. flight appearance.
0754	Pom. Jaeger	1	---		following ship.
0755	Ring-bill Gull	2	all		ad's. " "
0800	Calif. Gull	1	---		1st yr. bird.
0801	" "	1	---		2nd yr. bird, considerably brown in dorsal plumage.
0803	" "	5	---		2 1st yr. birds, 3 2nd yr. birds, all following ship.
0810	Booby sp.	1	SW		white rump, head + neck, darker wings - never saw a blue-faced fly or look like this, I believe blue-footed.
0817	Larus sp	4	W		
0837	Calif Gulls	3	all		too far out, but size of Calif. west.
0855					1st yr. birds, joined other ship followers.
					cease watch.
0925					Open watch.
0931					
0938	west. Gulls	2	all		porpoise 20+ very white posterior portion of dorsal fin some markings on side, but otherwise light, very dark at base of caudal.
0942	shearwater sp	1	N		Ca. 8 long. Prob. Pacific white-sided Dolphin.
1002	Frigate	1	all		wedge-tail size + color (1st phase), but fairly far out.
1017	shearwater	1	W		ad. ♀.
1036	Larus sp	9	all		same as 0942, also far out.
1130	West. Gull	1	all		circling far out - 2/3 1st yr. birds.
1130					Field # 105081 1st yr. bird.
1230					cease obs.
1232	S/Sb	1	NW		begin obs.
1242					underwings fairly dark, probably slender-bill.
1300					bands + patches of dark brown water, not in any particular band or pattern, but distributed over wide area.
1600					begin station to test gear - cease obs.
1602	Calif. Gulls	3	all		Resume obs.
	west Gulls	1	---		ad's
	Larus sp.	4	---		ad. } circling flock
					1st yr birds
1612					Turtle (ca 2 across) swimming outwardly appeared to be hurt.





Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Crossin

Date 21 Feb. 1968
Pg. # 2

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

1613	Calif. Gull	1	W		2nd yr bird.
1625	Storm Petrel sp	1	N		all dark, far out
1628	Pink footed shear	1	N		light bill completely different flight pattern from wedgetail.
1715	Munx Shear	2	SW		
1720	Pink footed Shear	1	NW		
1726	Red Phalarope	2	W		settling on + off H ₂ O, very pale dorsally

1800

Porpoise ca. 80
Pac. White-sided
Dolphin

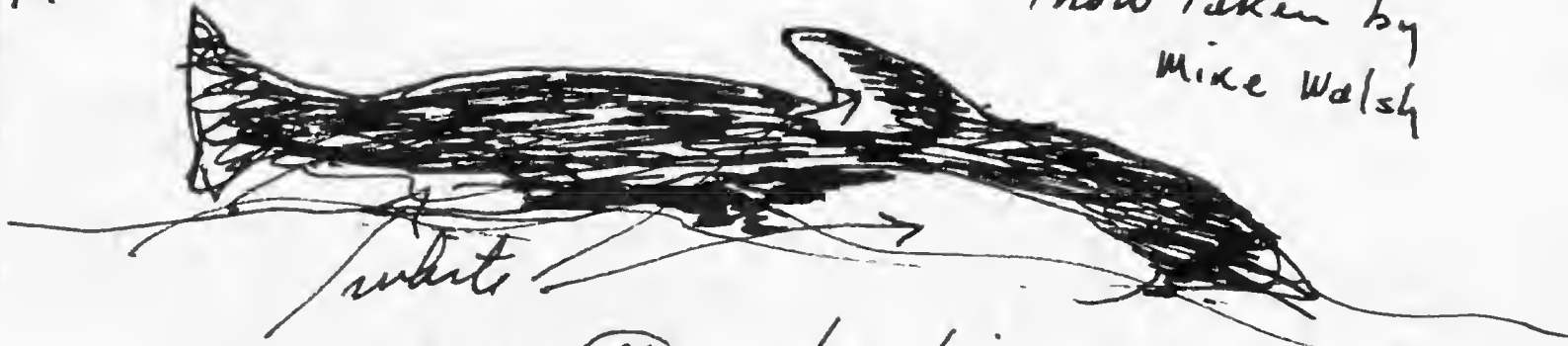


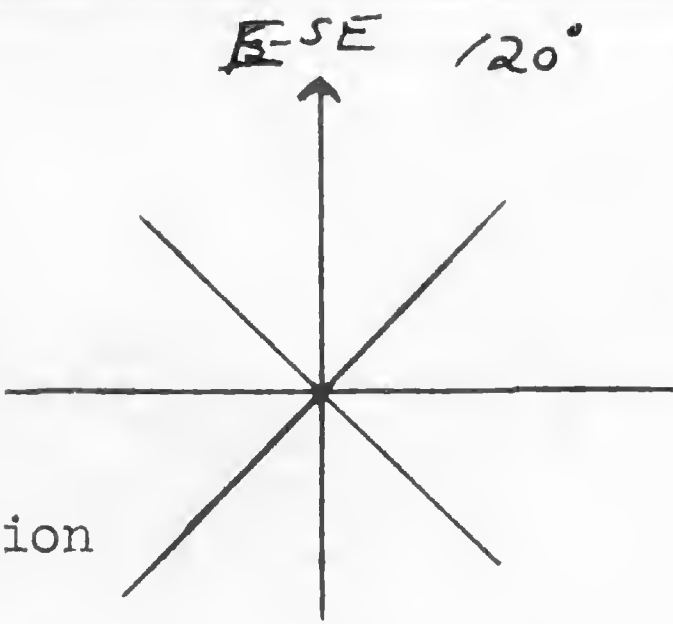
Photo taken by
Mike Walsh

most went to follow a big liner going opposite direction, ~~the~~ stayed under our bow for 1/2 hr. + riding pressure wave.

off shore (20 mi +) Bahia Magdalena

1833

Sunset.



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

R. S. C.

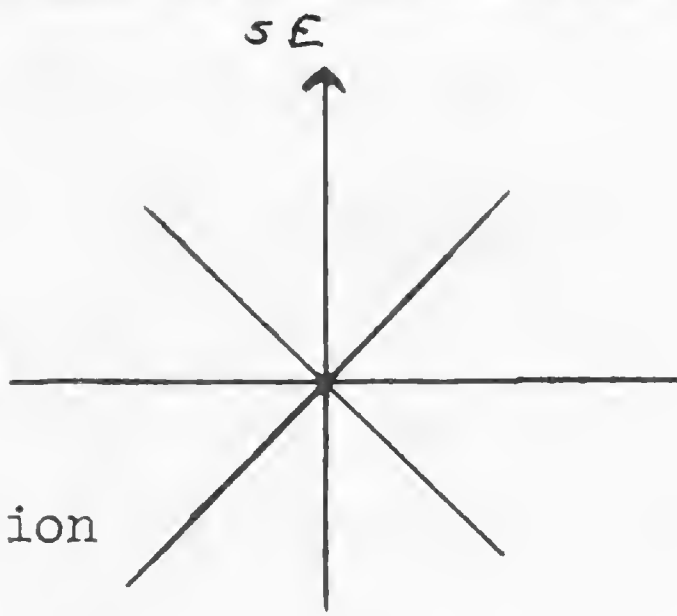
Date 22 Feb. 1968
Pg. # 1

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0647					Sunrise - Begin Obs. Clear sky. W W at ca. 7 knots.
0708	Wedge tail	1	NE		Cabode San Lucas just to L of Rising Sun.
0747	Shear-pet	1	SE		light phase.
0752	Larus sp	1	E		all dark, small petrel size.
0803	" "	1	☉		1st yr. bird.
0812	" "	1	☉		" 2 now circling ship.
0841	Puffinus	1	NW		This is definitely a different race than the Manx ^{auricularis}
0948	Puffinus auricularis Frigates	2	☉	ad ♀s	Seen last few days. Manx is much browner without "rump patches"; this bird was very black, with definite "rump patches" like Newells in C. Pacific.
0958	Manx Shear	1	N		
1002	" "	1	N		definitely no "rump patches"; browner than 0841 bird.
1007	Wh. rumped St. Petrel	1	S		too far out to get a good look, fast flight.
1012	Black Petrel	2	☉		Following ship; ID by light dorsal pattern, under wings, forked tail, size + flight.
1018	" "	3	☉		Joined other two.
	Fork-tailed Petrel	1	☉		with 5 blacks
	W.R.S.P	1	☉		" " "
1037	Frigate	1	NW		ad. ♀, dove at a small fish which was chased to surface by a dolphin (mahi mahi).
1045	P. puffinus auricularis	1			passing back + forth in wake; white "rump patches"
1048	" "	2			joined 1045 bird.
1103	Leach's S.P.	1	☉		white rump w/ considerable black extending posteriorly into white area centrally.
1130					split for lunch.
1200					return to watch.
1207	WTRSP	1			following wake, blacks have split.
1223	P. puffinus auricularis	1	NW		white "rump patches", very dark black.
1230					split for paper work
1530					open watch.
1550	Black Petrels	2			following wake.
1600	" "	1			" "
1600	WTRSP	1			" "
1620	Bl-footed Bobby	1	S		subad. good views, close.

Full
E.



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Crossin

Date 22 Feb. 1968

Pg.# 2

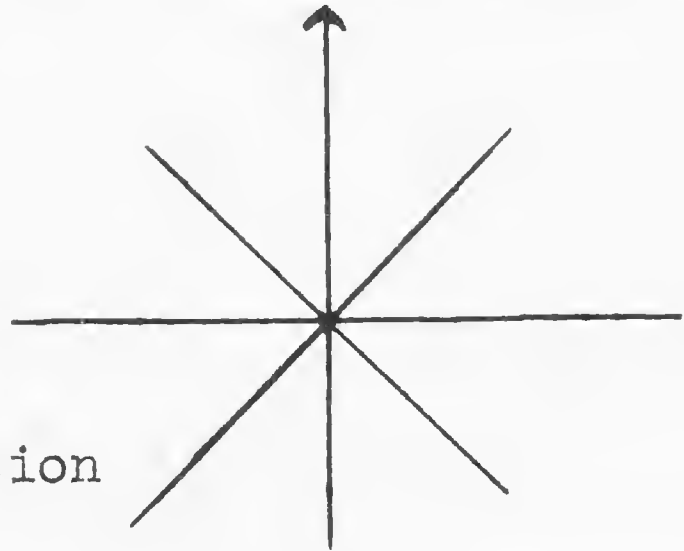
SPECIMEN

or

TIME SPECIES # DIR. BAND NO. REMARKS

FF	16 30	Sooty Tern	600 ± 50			ad's, 1 imm. could have been more,	} following a school of small tuna, entire assemblage moving SW ward.
C		Manx Shear	60 ± 10				
		P. puffinus auricularis	400 ± 50			1 coll. 105082	
		Pink-footed Shear	3				
		Brown Booby	2			1 imm.	
		Pomarine Jaeger	1			dark phase	
		Red-billed Tropicbird	1			on H ₂ O	
	17 15	P. puffinus auricularis	3	SW			
TF	17 20	" "	7	SW			
	17 21	Red Phalarope	3	SW		on + off H ₂ O, ID by very pale back + dark hood mark, which may not be absolute.	
	17 25	WRSP	1	SE			
	17 32	Pomarine Jaeger	1	NW		ID by dark chest band, heavy body. light phase.	
TF	17 44	P. puffinus auricularis	5	NW		nice "rump patches"	
TF	17 47	Sooty Tern	11	NW		Traveling flock	
		P. puffinus auricularis	13				
		Pomarine Jaeger	1/dark				
	17 48	WRSP	1	SE			
	17 51	Leach's SP	1	SW		good views.	
TF	17 55	Sooty Terns	50	NW		ad's (count of 48)	
		P. puffinus auricularis	15 ±				all moving leisurely
		Pink-footed Shear	1				
		Pomarine Jaeger	1				
	18 00	WRSP	1	NW			
FF	18 07	Sooty Tern	85 ±			Terns + Shearwaters actively feeding, terns diving to water, calling (like old times!) but no predator fish visible.	
		P. puffinus auricularis	30				
		Pink-foot Shear	2				
		Pom. Jaeger	2				dark phase
	18 14	WRSP	1				
	18 14					Sunset	

SE 125°



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

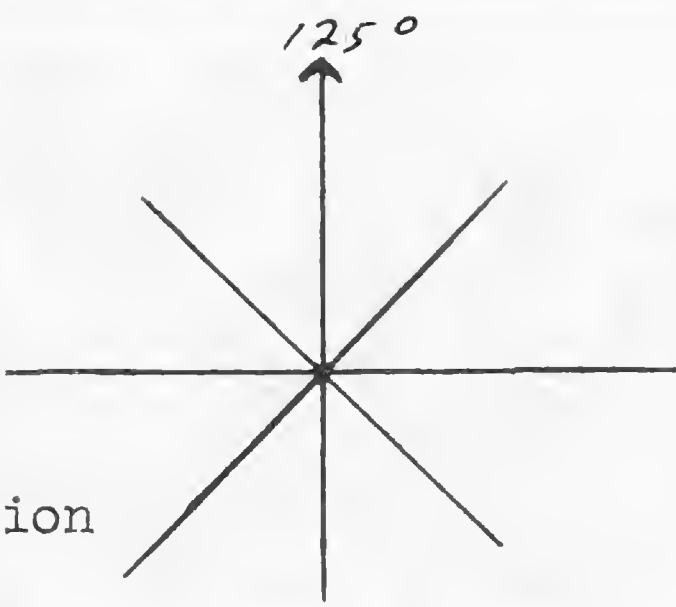
Crossin

Date 23 Feb. 1968

Pg. # 1

SPECIMEN
or

	TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
	0628					Begin Obs.
	0630					Sunrise.
	0658	Sooty Tern	3	N		ad's - direct flight.
TF	0707	Northern Phalarope	6	E		ID by dark backs w/ appropriate white pattern intermixed.
SF	0710	sooty tern	23	CE		
		Phalarope sp.	"			searching over flock of phalaropes on H ₂ O
TF	0711	Phalarope sp.	18	SE		ways out.
	0715	" "	3	E		off H ₂ O
	0716	sooty tern	1	NE		ad.
	0720	Phalarope sp.	6	E		off H ₂ O, far out.
	0721	WRSP	1	N		
	0725	Phalarope sp.	2	E		off H ₂ O.
	0729	" "	4			on H ₂ O - lighter dorsal, but large, prob. Wilson's.
	0729	sooty tern	1	E		ad.
	0730					split for breakfast
	0740					return from "
	0745	sooty tern	2	NW		ad's.
	0746	Phalarope sp.	3			on H ₂ O, ways out.
	0750	sooty tern	13	NW		ad's.
	0750	Franklin's Gull	1	CE		following ship, went to H ₂ O for garbage, then followed ship some more.
TF	0755	sooty tern	7	NW		ad's.
SF	0800	phalarope sp.	21			on H ₂ O
TF	0810	Blue-footed Booby	9			W ad's.
	0817	Brown Booby	1	S		ad.
	0821	Phalarope sp.	2	NW		
	0821	" "	1	E		
	0821	Tropicbird sp.	1			off H ₂ O
TF	0830	Phalarope sp.	21	E		
	0831	Black Petrel	2	CE		following ship.
TF	0836	Phalarope sp.	22	E		ad Boobys
		Bl-footed Booby	4			
	0840	sooty tern	2	NW		ad.
TF	0840	Phalarope sp.	6	E		
	0845	Ring-billed Gull	1	CE		imm. following ship.



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Crossin

Date 23 Feb. 1968

Pg.# 2

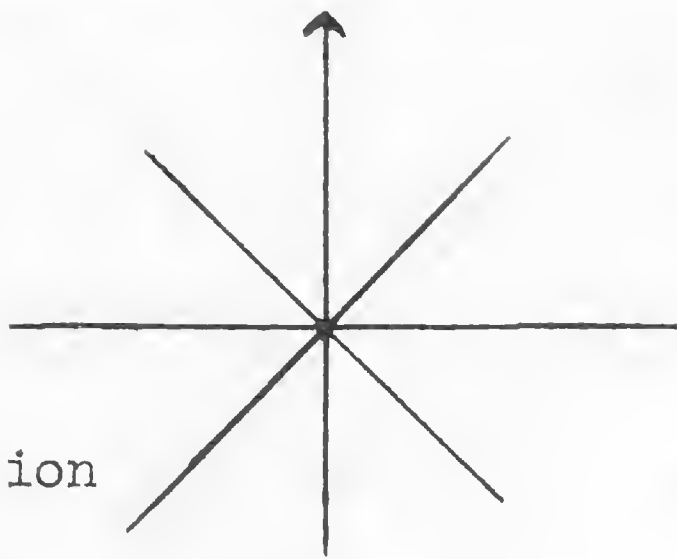
SPECIMEN

or

	TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
	0852	WRSP	1	E		into sun.
TF	0853	Phalarope sp.	7	E		either northern or Red., small.
TF	0859	Sooty Tern	10	NW		ads.
	0859	Red-billed Trop.	1			on H ₂ O ad.
SF	0906	Phalarope sp.	33			on H ₂ O, sitting along a natural slick line.
	0907	Northern Phalarope	4			on H ₂ O, in front of ship.
C	0910	Laughing (but not really) Gull	3	W		1 collected, all ad's.
	0921	Tropicbird sp.	1	E		ad. into sun, either wh-tailed or red-billed.
	0923	Larus sp.	1	W		1st yr. bird.
	0928	Laughing Gulls	4			joined others, 2 imm, 2 ad.
	0928	Brown Booby	2	E		imm.
	0932	Black Petrel	1	W		
	0933	Sooty Tern	2	NW		ads.
	0938	" "	2	NW		ad's
	0940	Tropicbird sp.	1			on H ₂ O, either red-billed or wh-tailed.
	0949	Red-billed Trop.	1			on H ₂ O
	0958	Laughing Gulls	3*	W		at least 2 imm. + 1 ad more are now following.
	1000					close obs.
	1030					open obs.
	1030	Turtle	1			brown, about 3 1/2' across, 4 1/2' length.
	1055	Brown Booby	3	E		imm's
	1056	Laughing Gull	1	W		ad.
	1059	Brown Booby	2	E		ad ♂, white faces.
	1115	Laughing Gull	2	W		ad's.
	1118	Brown Booby	1	E		imm.
	1130	Close obs				

Now in the Manzanillo Harbor complex with
a super-abundance of shore-based Brown Boobies.
All moving west ^{out from shore} from Manzanillo


117

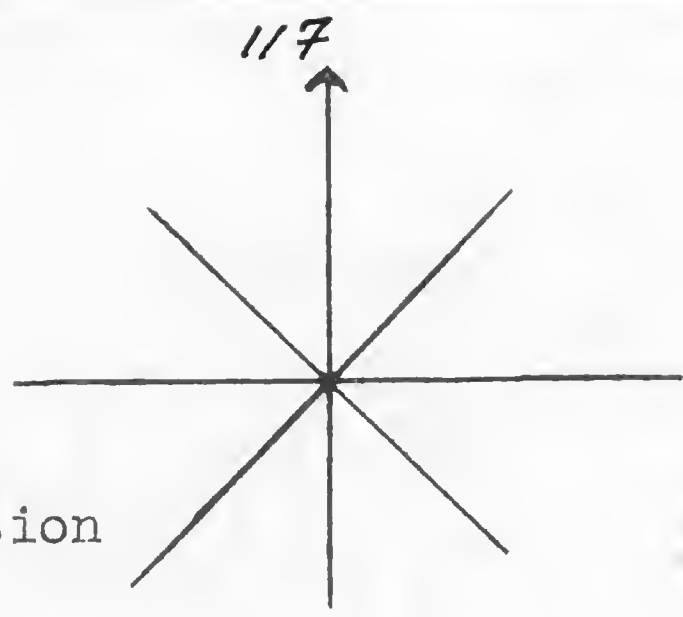
Ship
DirectionSMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Crossin

Date 26 Feb. 1968
Pg.# 1SPECIMEN
or

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0610					Sunrise - begin obs.
0615					wind practically nil, sea dead calm.
0618					an ugly old ship goes by heading N. coastline of Guaymas to E. sky absolutamente claro.
0648	Shearwater sp.	2	NW		a big sharp-looking shark swims lazy circles on port side. one can see a 100 miles in every direction on this calm sea, and there are no birds out here!
TF 0651	sooty tern	6	NW		ads. dark above, light below, but too far out to speciate.
0656	Shearwater sp.	1	NW		another of the 648 band, flight appears different from
TF 0700	Brown Boobies	19	NW		? puffinus and these look larger - unless this calm sea is screwing up both flight pattern + my perspective for size.
TF 0703	" "	6	NW		" "
TF 0706	" "	18	NW		" "
TF 0707	" "	5	NW		" "
0708	" "	4	NW		1 ♂, 3 ♀ all boobies making it, low over
TF 0709	" "	25	NW		420, direct flight.
TF 0709	" "	7	NW		" "
TF 0712	" "	7	NW		" "
TF 0712	" "	14	NW		" "
TF 0713	" "	12	NW		" "
TF 0714	" "	11	NW		" "
0716	" "	3	NW		" "
TF 0718	" "	7	NW		" "
TF 0718	" "	13	NW		" "
0719	Manx Shearwater	1	E		close in, no "rump patches", dark brown back, without clean cut lines as townsend's.
TF 0722	Brown Boobies	5	NW		all ad's.
TF 0725	" "	7	NW		passed over a school of porpoise without altering flight.
0725					porpoise 20 [±] N
TF 0730	Brown Boobies	6	NW		all ad's.  all dark, surfacing periodically, only one seen entirely clear of the
0731					split for breakfast. Perhaps <i>stenella longirostris</i>
0745					resume obs.
0751	Brown Boobies	16	NW		all ad's.
0806	" "	1	W		ad.
TF 0807	" "	7	NW		ads.
TF 0813	" "	13	NW		" "
0816	" "	1	NW		" "
0818	" "	3	S		" "
0823	" "	1	NW		" "
0830	" "	2	NW		" "
0833	" "	2	NW		" "
0835	" "	1	NW		" "
TF 0842	" "	9	NW		" "
0845	" "	1	NW		" "
0847	" "	9	NW		" "



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:
Crossin

Date 26 Feb. 1968
Pg. # 2

SPECIMEN
or

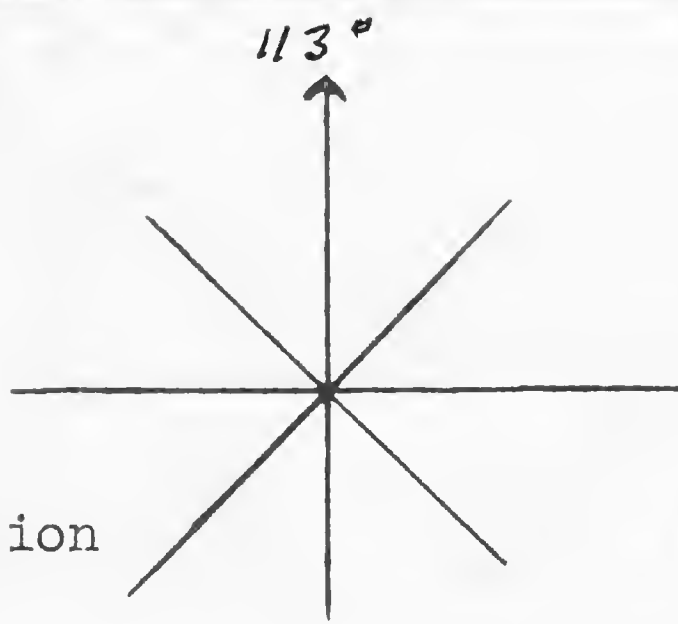
TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0848	Brown Boobies	4	NW		ad's.
0852	" "	2	NW		ad's.
0853	" "	3	NW		imm's, the first noted.
0900					whales 4 ca. 18' long, dark brown, no distinct marks, only portion of dorsal ever surfaced.
0906	Storm Petrel sp.	1	W		off, all dark.
0907	Phalarope sp.	14	E		dark bases, Prob. northern.
0908	" "	42	on H2O.		
0911	Brown Booby	1	S		imm.
0913	" "	2	CE		" following (rather circling ship.)
0922	Northern Phalarope	71			off H2O, flew for long distance directly in front of ship.
0926	Brown Booby	1	S		ad.
0934	" "	1	SW		"
0943	" "	1	SE		"
0951	Pomarine Jaeger	1	CE		light phase, following ship.
1010	Brown Booby	1	CE		following ship, imm.
1017	Frigate	1	N		ad. ♂
1043					school of Porpoise, 50 ± 10%, way out. showed both dark & light color, few cleared water by ca. 15', ^{or more} could have been spinners, but fairly heavy-bodied. apparently underside is light; started moving in a solid front. possibly <i>Stenella longirostris</i> .
1051	Pomarine Jaeger	1	W		Dark phase.
1100	Brown Boobies	2	NW		ad's.
1101	" "	1	NW		imm.
1112	Pom. Jaeger	1			light phase of 0951 collected RSC.
1130					cease obs.
1530					open obs.
TF 1535	Brown Boobies	9	NW		ad's.
1538	" "	7	NW		ad's.
1539	" "	2	NW		"
1541	" "	11	NW		"
1545	" "	2	NW		1 imm., 1 ad.
1550	" "	2	NW		imm.
1553	" "	11	NW		all ad's.
1553	Pomarine Jaeger	1	CE		follow ship - light phase.
1601	" "	1	CE		" - dark phase
1603	Brown Booby	1	NW		ad.
1607	" "	16	NW		13 ad's., 3 imm.
1608	Frigate sp.	1	CE		way out.
TF 1615	Townsend's Shear	5	N		sighting sure.
1621	Gull sp.	3	N		way out.

shift
Div.
to
113

C

TF

TF



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

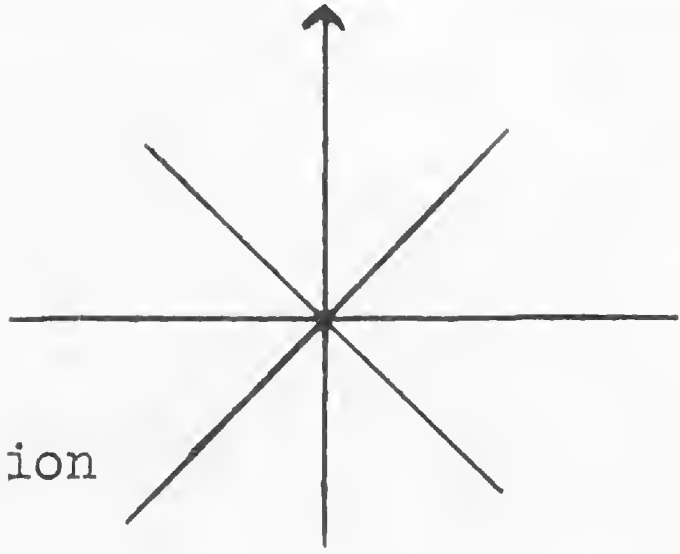
OBSERVERS:
Crossin

Date 26 Feb. 1968
Pg.# 3

SPECIMEN
or

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
1625	Brown Booby	1	NW		Imm. Still running along the coast of Guerrero.
1629	" "	17	NW		ad's. split for supper.
1630					
1645					open obs.
1651	Brown Booby	1	NW		imm.
1655	Pom. Jaeger	2	CE		both light phase, foll. ship
1701	Brown Booby	3	NW		ad's.
1706	Red-billed Tropicbird	2	NW		ad's, calling. high-pitched nasal "yerk"
FF 1709	Pom. Jaegers	13	CE		descended upon the garbage dumped overboard, at least two were dark phase. 15 total = at least 13 new ones.
1747					Sunset, close obs.
					1710 - put on 15 with note for abundance in the spec.

226°



Ship Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

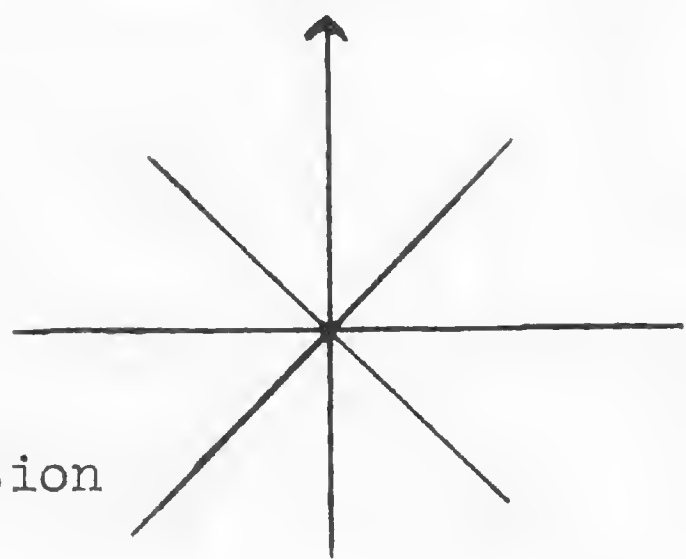
OBSERVERS:
Crossin

Date 27 Feb. 1968
Pg. # 1

SPECIMEN
or

	TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
	0605					Sunrise
	0630					begin obs.
TF	0642	Sooty tern	7	S		ad's.
	0646	Brown Booby	1	E		imm.
	0647	" "	2	E		1 ad, 1 imm.
TF	0650	" "	6	E		ad's.
J F	0651	" "	5	E		ad's
TF	0652	" "	13	E		ad's
TF	0701	" "	6	E		5 ad's, 1 imm.
	0704	" "	1	E		ad.
TF	0708	" "	8	W		ad's.
	0715	" "	4	CE		3 ad's, 1 imm.
	0720	" "	2	E		ad's.
	0721	Red-bill Tropic	1			ad, off H2O
	0728	Booby sp.	1	SE		either Red-foot or Blue-face - far out.
	0730					split for breakfast.
	0745					on C station.
	↓					
	0755					resume obs.
	0755					
	0756	Pom. Jaeger	1	CE		light ph. both circling ship.
		Brown Booby	1	W		Imm.
	0810	Brown Booby	1	on H2O		ad. ♂
TF	0817	" "	8	SW		ad's
	0818	" "	1	SW		Imm.
	0830	" "	1	E		ad.
	0840	" "	4	SW		ad's.
	0850	" "	2	CE		Imm. circling ship.
	0906	" "	1	SW		ad.
	0908	Red-billed tropic	1	NE		age?
	0928	Brown Booby	3	SW		ad's.
TF	0938	" "	5	SW		"
	0942	Pom. Jaeger	1	CE		dark phase, fall. skip
	0950					stop for station.
	1000					(A-type) fairly distinct current boundary marked by several bands of brown H2O running SE-NW
	1430					Resume obs.
	1434	Brown Booby	1	SW		ad.
	1440	" "	3	SW		" "
	1445	" "	1	SW		"

226°



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Crossin

Date 27 Feb. 1968

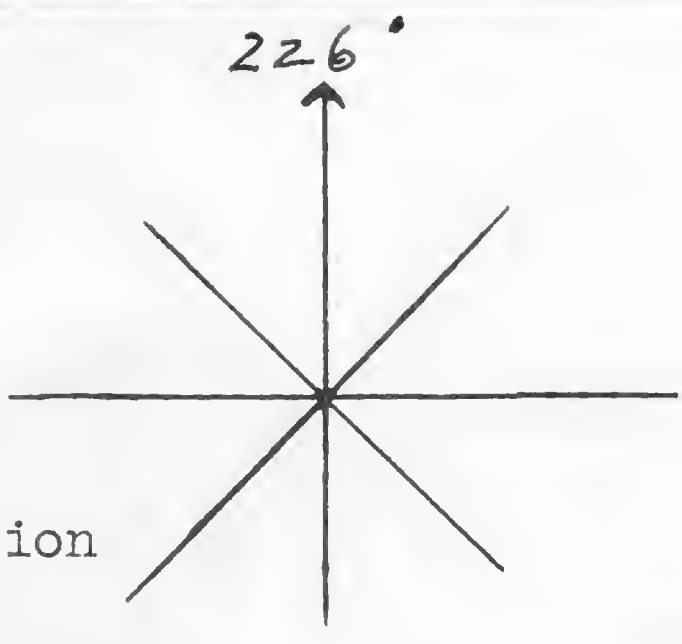
Pg.# 2

SPECIMEN

or

TIME SPECIES # DIR. BAND NO. REMARKS

1457	Brown Boobies	7	SW		ad's.
1510	WRSP	1	ce		broad white rump
1530	Brown Booby	1	ce		Imm circling ship
1535	Red-billed Tropic	1	S		ad.
1545	" " "	1			on track - collected RSC 105085.
1600					on station - cease obs.
1745					station over
1755					sunset



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:
Crossin

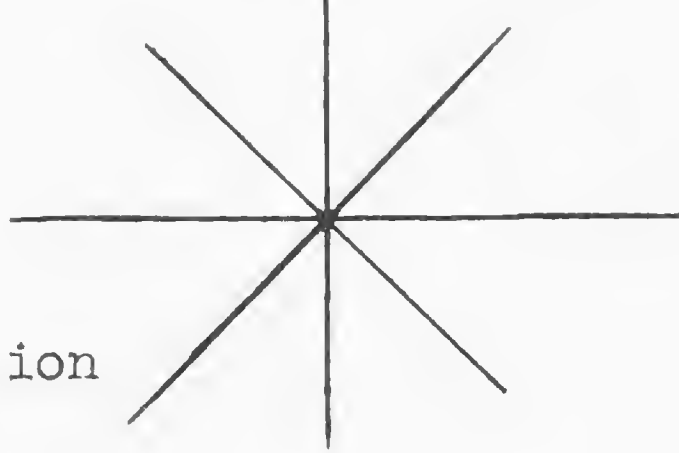
Date 28 Feb. 1968
Pg. # 1

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0611	Imm				
0630					Begin obs. No shooting 9-10 a.m.
0655	WRSP	1	SE		too far out to tall sp.
0656	Doddy sp	2	SE		not browns, into sun, either blue-fots or blue face.
0705	Brown Booby	2	} ^{on} _{depth}		foll. ship. Imm's.
	Red-footed Booby	1			
0718	Blue-faced Booby	1	N		Imm
	Brown Booby	1	N		Imm } traveling together.
0723	Red-billed trop.	1	SE		
0730	" " "	1	a		joined other.
0730					split for breakfast.
0745					resume watch.
0815	Brown Booby	1	W		Imm.
0822	Shear-Pet	1	E		med-sized, all dark.
0836	Brown Boobies	3	S		Imm's.
0845	WRSP	2	SW		
0854	"	2	E		
0855	Red-bill tropic	1	SE		
0912	Red-footed Boobies	2	SE		foll. ship. Imm, dk. ph.
0917	" " "	3	SE		joined other two, Imm's ph.
SF 0922	Harcourt's sp?	5			on H2O, How. Very broad white band, square tails, not
0945	Red-billed trop	1	on H2O		the brown pronounced wingcoverts. also body very
0946	WRSP	2	SE		black.
0947	Red-foot Boob.	3	S		2 Imm, 1 ad.
1000					stop for station.
1330					open sea.
1404	Red-footed Booby	1	SW		Imm. dk ph.
1413	Blue-faced Booby	1	SE		subad.
1440	Red-footed Booby	5	SE		foll. ship, Imm's. dk & ph
1530	" " "	1	SE		" " " " "
1600					close sea. station

180°



Ship Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

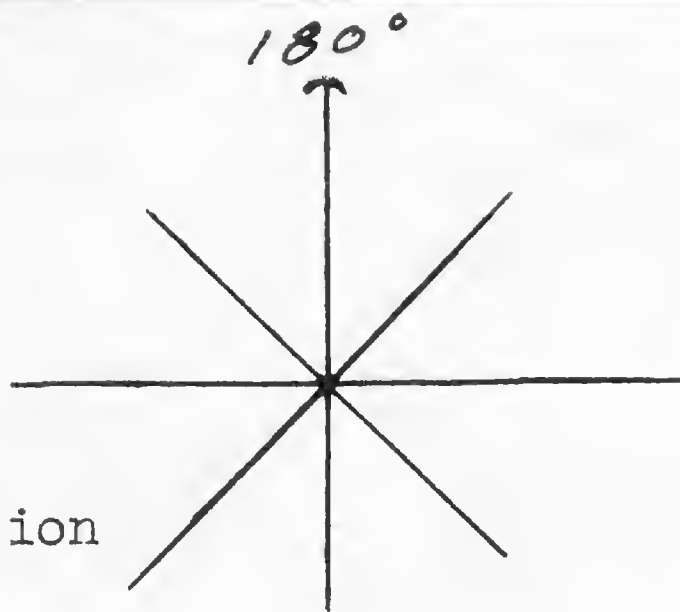
OBSERVERS:
Crossin

Date 29 Feb 1968
Pg.# 1

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

	0634				Begin obs.	
	0635	Pom Jaeger	1	SE	dark phase	
TF	0704	sooty tern	15	E	ad's.	
	0711	Pale-foot Shear	1	E		
	0720	Red-footed Booby	3	W	Imm. foll. ship, dark.	
	0730	Pom. Jaeger	1	E	1st obs.	
	0730				split for breakfast	
	0800				Drift station start, will run until 1700	
	1030				skiff in H ₂ O	
	1530				skiff out H ₂ O	
					<ul style="list-style-type: none"> 1 Leach's St Pet. 1 Harcourt's St Pet 1 Red-footed Booby 	collected over all given coll time at 1200, at the actual drift line on 3-4 miles due right of line
					<ul style="list-style-type: none"> 1 wedgetail LP 2 Red-foot Boob. Imm. 3 Sooty Tern ad. 3 Phalarope sp. 1 New Zealand Shear 1 Leach's Harcourt's sp 1 Leach's sp 	seen from skiff. all given obs. time at 1300 - see above
	1650				open ^{ship} obs.	
	1707	Leach's SP	3			
	1708	Red-foot Booby	4		off H ₂ O, Imm's. dark.	
	1709	Leach's SP	3		off H ₂ O	
	1720	" "	2			
	1725	" "	3			
	1736	" "	2			
	1738	" "	1	N		
	1807	Red-footed Booby	1	SE	Imm. dark	
	1809				Sunset.	



SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Crossin

Date 1 March 1968

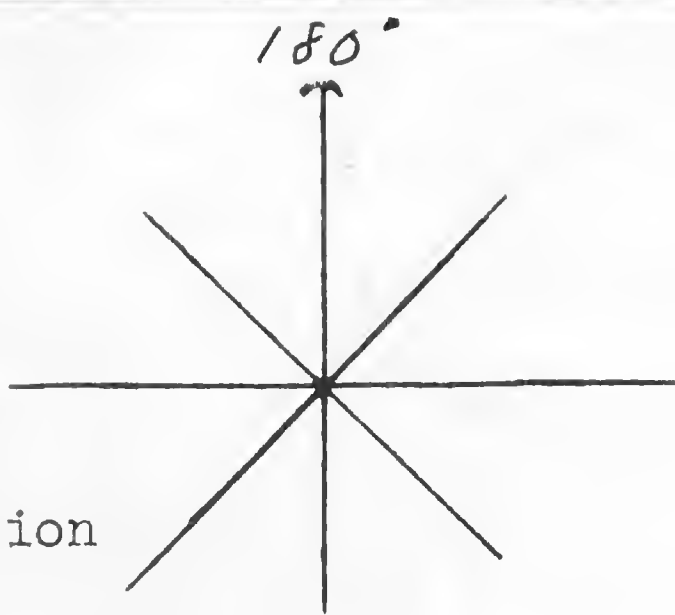
Pg.# 1

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0613					Sunrise, begin obs.
0617	WRSP	1	SE		
0628	Sooty Tern	3	SE		ad's.
0654	WRSP	1	S		light phase.
0716	wedgetail	3	W		
0718	Leach's Sp.	2	S		
0720	" "	1	S		
0728	Phalarope j.	2			on H ₂ O
0732					split for breakfast
0745					resume obs.
0748	WRSP	1	clear		
0800					stop for station
1212					skiff in - oil slick
1220	WRSP	1	~~~~~		
1220	wedgetail	2	~~~~~		Light phase
1300	Pterodroma sp.	2	~~~~~		med-sized
C 1310	Leach's Sp	1	~~~~~		on oil slick collected.
C 1330	" "	1	~~~~~		" " " " " "
C 1335	JFP	1	~~~~~		" " " " " "
C 1340	wedgetail	1	Light ph. ~~~~~		" " " " " "
C 1345	Leach's	1	~~~~~		" " " " " "
C 1345	JFP	1	~~~~~		seen.
C 1348	Leach's	1	~~~~~		coll. on slick
C 1430	" "	1	~~~~~		" " " " " "
C 1445	" "	2	~~~~~		" " " " " "
C 1447	JFP	1	~~~~~		" " " " " "
C 1540	Leach's	1	~~~~~		skiff out
1600	Harlequin				resume bridge observations.
1640					
1652	wedgetail	2 1	W		light ph.
1653	" "	1	W		" "
1700	Leach's Sp	2	S		
1721	" "	1	~~~~~		
1728	" "	2	~~~~~		
1735	" "	1	S		
1812					sun out near obs.

Skiff
" coll.



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:
CROSSIN

Date 2 March 1968
Pg.# 7

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

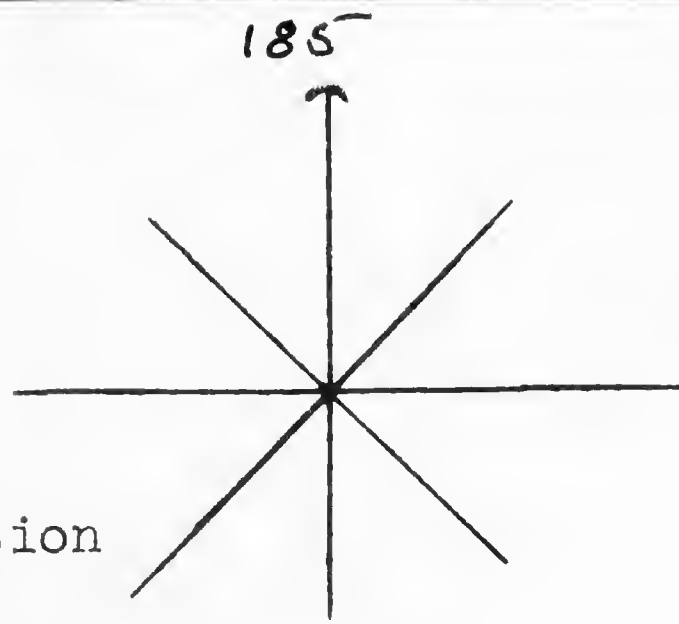
TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0612					Sunrise, begin obs.
0626	WRSP	1	S		
0628	"	2	~~~~~		
0637	"	3	~~~~~		about whales
0637					whales 40 ^{±10%} could only see the blow, animals lined up in two fronts. lighting very bad.
0643	WRSP	1	S		
0646	Wedgetail	2	S		light ph.
0653	shear/pet	1	E		all dark - looked like X-mas IS S.
0709	Wedgetail	3	S		lt. ph.
0714	shear/pet	1	N		
0720	Leach's SP	1	S		possibly JFP
0730					split for breakfast
0745					resume obs
0752	Leach's SP	2	S		
0754	JFP	1	W		
0800					on station
1200					open watch
1230					skiff in
1235	Leach's SP	1	~~~~~		
1240	Wedgetail	1	~~~~~		dk. ph.
1250	Leach's SP	1			collected
1315	Wedgetail	1	~~~~~		dk. ph.
1330	JFP	1	~~~~~		
1400	Leach's SP	5			all collected.
1410	Red Phalarope	3			1 coll.
1420	Leach's SP	5			1 collected, 2 others shot, eaten by shark.
1425	JFP	1	~~~~~		
1430	Wedgetail	1			dk. ph.
1445	Leach's SP	5			2 collected
1500	" "	7			3 collected
1530					skiff returns to ship
1700					open watch
1720	WRSP	1	S		
1726	"	1	S		
1750	"	2	S		
1755	JFP	1	S		
1813					sunset

SKIFF over oil slick

Sea rough, rough, rough.
sky heavily overcast.
swallows

Sea very rough.

SI-MNH-958-e
Rev. 5-66



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

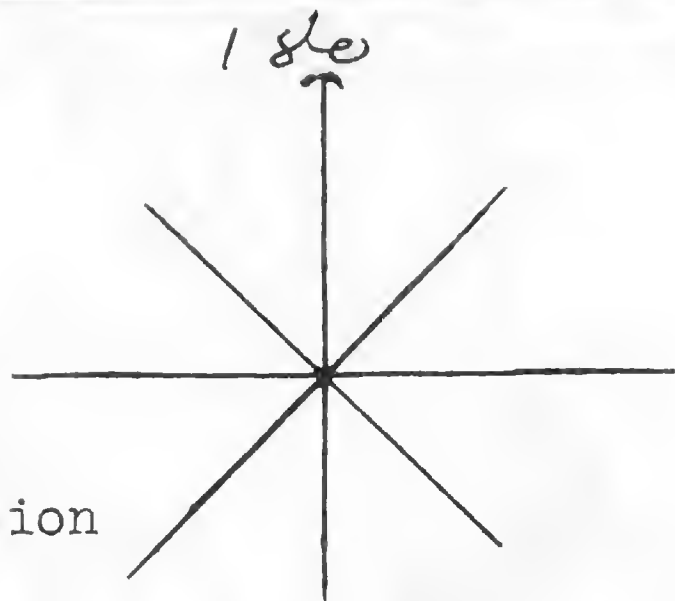
OBSERVERS:
Crossin

Date 3 March 1968
Pg.# 1

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

0611					sunrise - begin obs.	sky heavily overcast inter- mittent rain. sea rough.
0621	Phalarope sp.	1	on H ₂ O			
0635	Pterodroma sp.	2	E			
0703	WRSP	3	<u> </u>			
0715	"	1	<u> </u>			
0720	"	1	SE			
0723	JFP	1	SE		split for breakfast	
0730						
0800	1600				on station	
1645					resume obs.	
1700	Leach's SP	1	E			
1726	Pterodroma sp.	1	N		far out.	
1735	Leach's SP	1	S			
1736	" "	2	S			
1738	" "	1	SW			
1756	Phoenix Is. Tahitian P	1	NW			
1813					sunset - cease obs.	



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Crossin

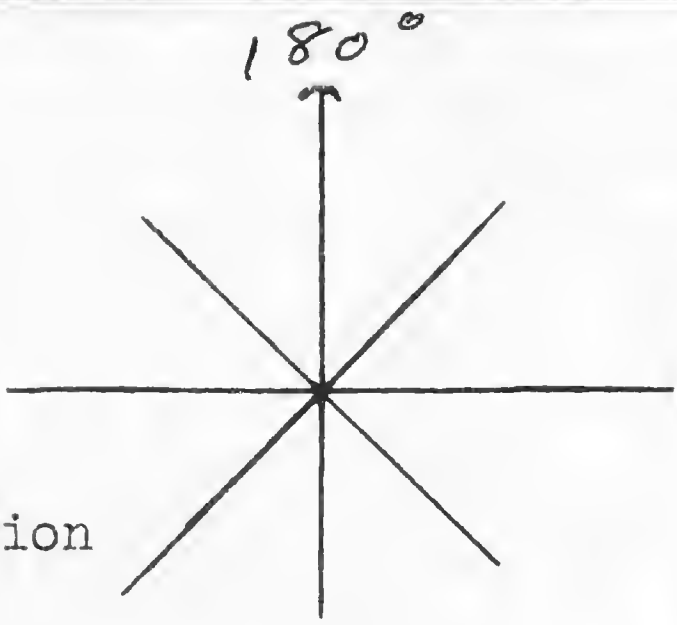
Date 4 March 68
Pg.# 1

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0609				Sunrise	leave station - begin obs.
0630					
0652	WRSP	1	E		} Rain
0656	"	1	W		
0710	"	1	E		
0718	"	1	S		
0730					split for breakfast.
0800	1600				on station
1230					skiff in, oil slick out
C 1231	Leach's sp	1			coll
C 1240	"	1			"
C 1243	Frigate	1			Imm coll.
C 1335	Leach's	1			coll
C 1340	Pterodroma Pterodroma	1			"
C 1345	Leach's	1			"
C 1355	"	1			"
C 1410	"	1			"
C 1445	"	1			"
C 1448	"	1			"
C 1515	"	1			"
1520	Leach's	2			seen
1530					skiff out
1600					resume ship watch
1630					split for supper.
1645					resume obs.
1659	Leach's WRSP	1	SE		fol. ship
1707	Leach's sp	1			
1814					Sunset

skiff over slick.



SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:
Crossin

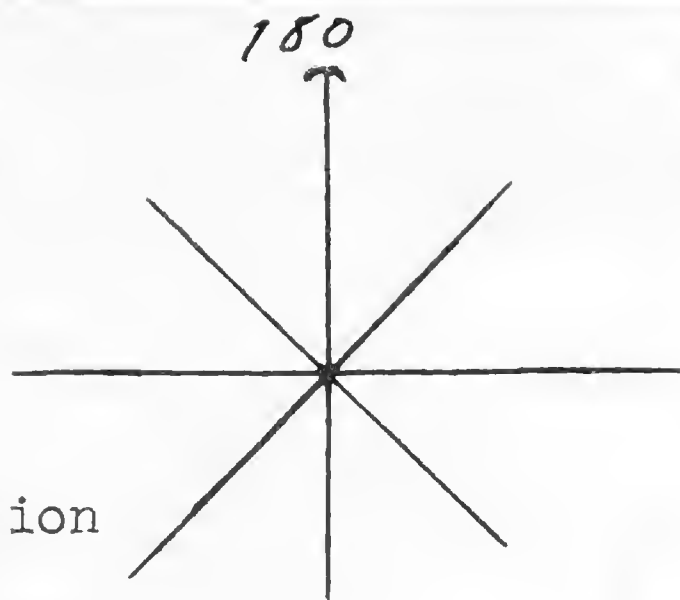
Date 5 March 1968
Pg. # 1

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0608					sunrise - begin obs. sky clear, ocean fairly calm, ground swell.
0609	WRSP	1	E		
0631	Phalarope sp.	1	N		
0716	WRSP	1	E		
0720					distinct current line, ^{running E-W} marked by discoloration of H ₂ O - band 60-100 yds wide.
0730					split for breakfast.
0740					return to watch.
0743	Red Phalarope	1	W		
0800					on station til 1600
1230					skiff in over oil slick
1231	Leach's SP	1	ca		
C 1250	" "	1			collected
C 1320	" "	1			"
C 1430	" "	1			"
C 1445	" "	1			"
C 1510	" "	1			"
1520	" "	2			about slick
1570					skiff out
1645					begin ship obs.
1732	Tropicbird sp.	1	NW		way out.
1802	WRSP	1	N		
1815					sunset.

Skiff



SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:
Crossin

Date 6 March 1968
Pg.# 1

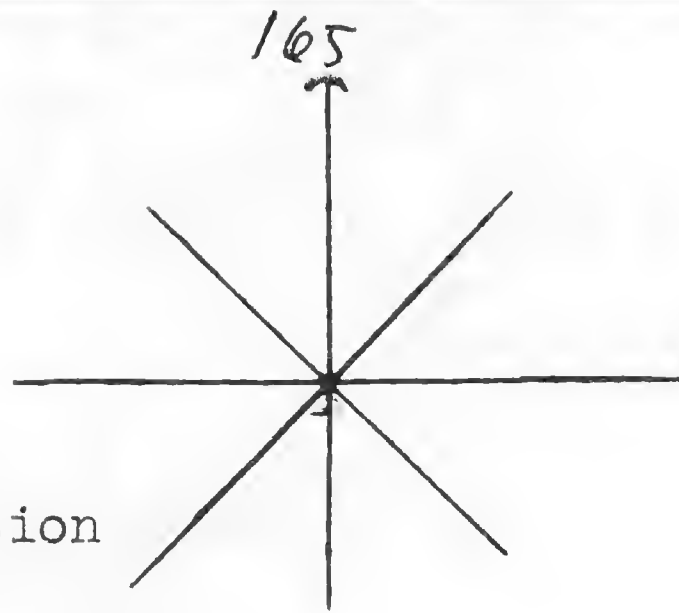
SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0608					sunrise - on station
0620					leave station - begin obs.
0624	WRSP	1	E		
0627	"	1	SW		
0638	"	1	S		
0642	Leach's SP	1	S		
0703	WRSP	1	E		
0708	"	1	S		
0710	"	2	S		
0730					split for breakfast
0800					1600 on station
0800					skiff in H ₂ O. alone - 2 bay and inner oil slick
C 0825	Leach's SP	1			coll.
C 0830	"	1			"
C 0835	"	1			"
C 0836	"	1			"
C 0837	"	1			"
C 0840	"	1			"
C 0930	"	1			"
C 0945	"	1			"
C 1000	"	1			"
C 1002	"	1			"
C 1005	"	1			"
C 1007	"	1			"
C 1010	"	1			"
C 1015	"	1			"
C 1020	"	1			"
C 1025	"	1			"
C 1028	"	1			"
C 1030	"	1			"
C 1035	"	1			"
C 1040	"	1			"
C 1042	"	1			"
C 1045	"	1			"
C 1050	"	1			"
C 1052	"	1			"
C 1055	"	1			"
C 1057	"	1			"
C 1122	"	1			"
C 1227	"	1			"
C 1230	"	1			"
C 1235	"	1			"
C 1240	"	1			"
C 1247	Red phalarope	1			"

Partially cloudy
Sea fairly calm.
Nat. slick lines about.

leaved oil slicks



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Crossin

Date 6 March 1968

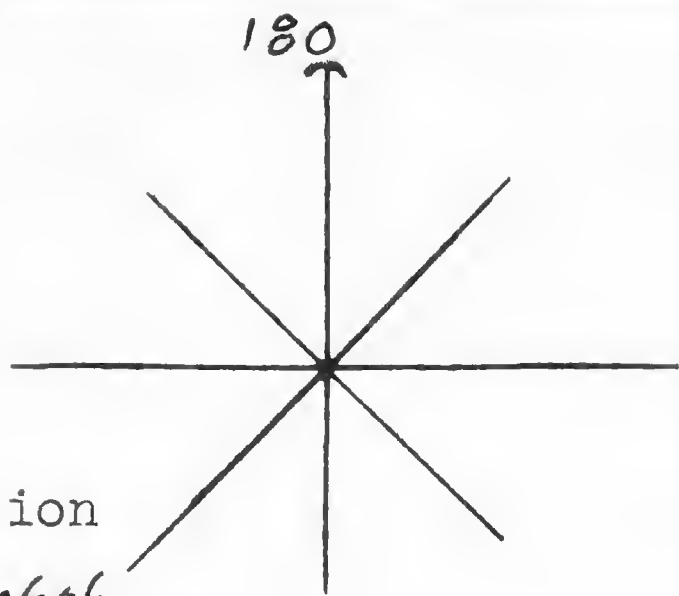
Pg. # 2

SPECIMEN
or

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
C 1250	Leach's SP	1			collected
C 1300	"	1			"
C 1315	"	1			"
C 1330	"	1			"
C 1345	"	1			"
C 1347	"	1			"
C 1350	"	1			"
C 1353	"	1			"
C 1355	"	1			"
C 1358	"	1			"
C 1400	"	1			"
C 1403	"	1			"
C 1404	"	1			"
C 1406	"	1			"
C 1410	"	1			"
C 1412	"	1			"
C 1415	"	1			"
C 1417	"	1			"
C 1418	"	1			"
C 1420	"	1			"
C 1422	"	1			"
C 1425	"	1			"
C 1427	"	1			"
C 1430	"	1			"
1500					skiff returns to ship - shooting arm sore.
1645					open ship obs. Natural Slicks
1650	S/SB	1	W		
1708	Leach's SP.	1	E		
1710	Pterodroma sp.	1	N		large, could have been dark-rumped.
1725	Pterodroma?	1	N		a beautiful black + white - med-eyed petrel, Don't even have an idea as to ID.
1730	WRSP	3			
1745	"	1	S		
TF 1755	"	5	S		
1810	"	2			
1815	"	2			
1816					Sunset

sea like a mirror

Natural Slicks



Ship
Direction

S.R. 0606

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:
Crossin

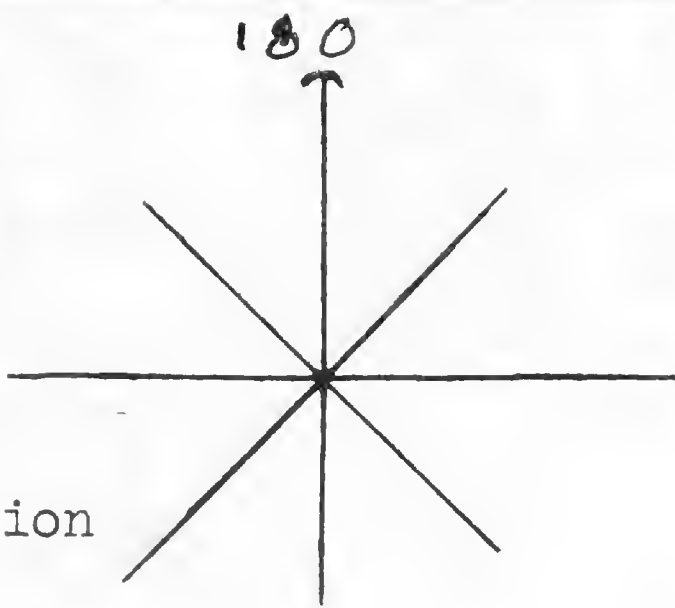
Date 7 March 1968
Pg. # 1

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

0630					begin obs.	Rain squalls everywhere
0636	WRSP	1	E			Sea rough
0655	"	1	W			
0706	"	1	S			
0708	"	1	E			
0713	"	1	SW			
0720	"	1	E			
0721	"	1	E			
0730					split for breakfast	
0800		1600			on station	
1640					resume obs.	
1707	WRSP	1	W			
1721	"	2	W			
1725	"	1	E			
1728	"	1	E			
1753	"	2	SE			
1807	wedgetail	1	W		dark phase	
1815					sunset	





SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:
Clossin

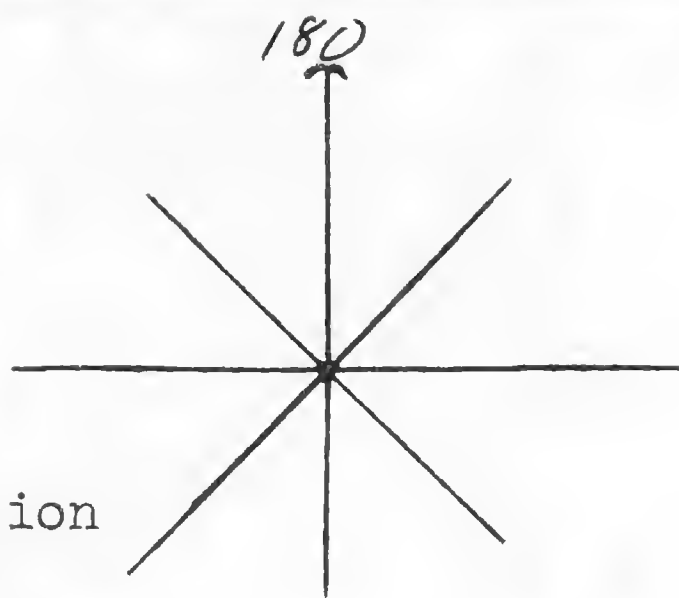
Date 8 March 1968
Pg.# 1

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

0700					begin obs.
0718	WRSP	1			
0728	"	1	N		
0730					split for breakfast.
0745					resume obs.
0800					on station
1030					leave station
1140					resume ship work
1230					skiff in, disalone. slick out
1231	Blue-faced Booby	1			ad.
1250	Leach's SP	2			
1310	"	1			
c 1320	"	1			collected
1345	"	1			seen
c 1405	"	1			collected
c 1415	"	1			"
c 1418	"	1			"
c 1420	"	1			"
1420	Pterodroma	1			large, seen
c 1430	Leach's	1			collected
1530					skiff out
1630					leave station
1640					resume ship obs.
1816					Sunset

Sea
ROUGH!
ROUGH!
ROUGH!



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Crossin

Date 9 March 1968

Pg.# 1

SPECIMEN
or

0605

TIME SPECIES # DIR. BAND NO. REMARKS

0638

Bird

1

N

-begin obs.
a weird pigeon - red black + white bird
flying along with continuous wing
beats about like a tern - white below,
mottled black + white above.

0730

0745

0755

Phalaropus

1

split for
preacher
resume water
large

0800

1640

on station

1650

leave station

1651

WRSP

4

SE

begin obs

1717

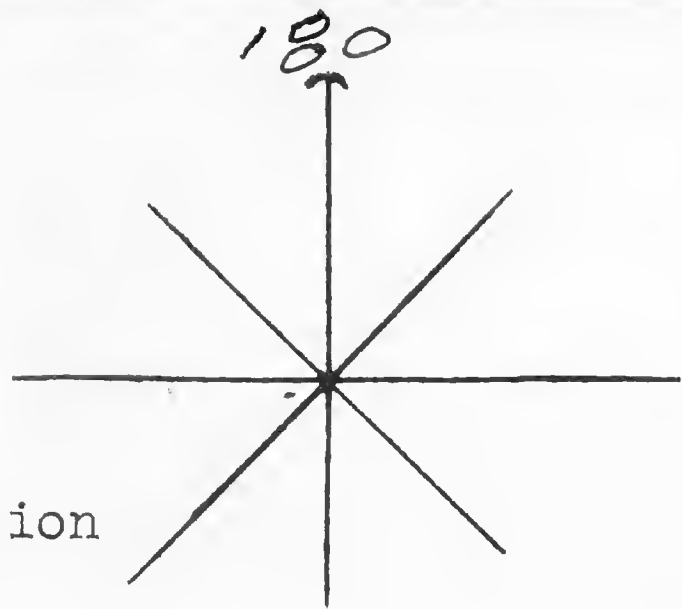
Phalaropus

1

SE

1816

unset



SMITHSONIAN INSTITUTION
 DIVISION OF BIRDS
 AT SEA DAILY LOG - E

OBSERVERS:

Crossin

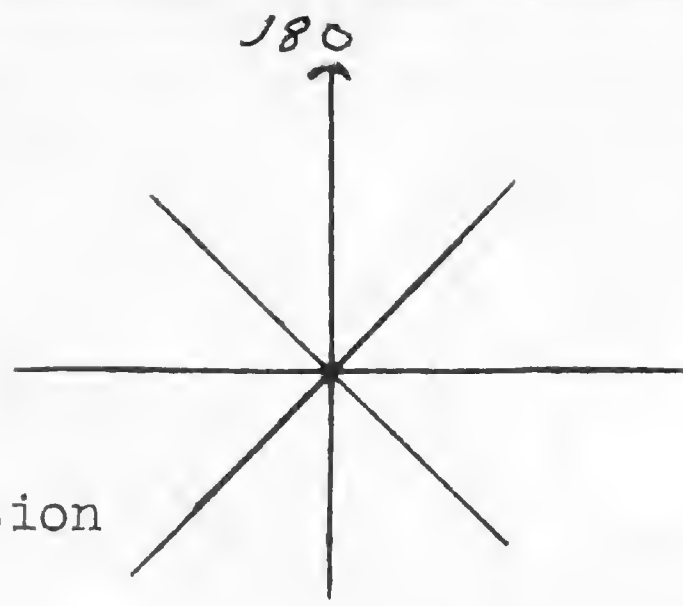
Date 10 March 1968

Pg.# 1

SPECIMEN
 or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0645					leave station, begin obs.
0729	Fairy Tern	1	S		
0730					split for breakfast.
0750					begin station
1710					off station - begin obs.
1816					sunset - cease obs.



Ship
Direction

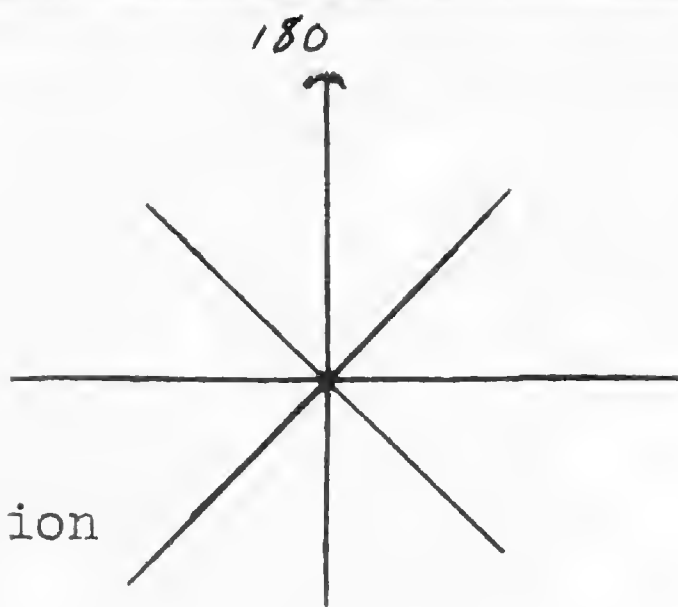
SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:
Crossin

Date 11 March 1968
Pg.# 1

SPECIMEN
or

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0604					sunrise - begin obs. SEA! ROUGH!
0645	Bl-wing Petrel	1	N		grey crown, heavy black margins, to underwing, wash-mark separating white surfaces.
0700	Storm Petrel sp.	1			
0730					following ship. all dark - looked larger than Leach's. lighter brown secondary coverts.
0740					split for breakfast.
SF 0749	JFP Parasitic Jaeger	3 2			resume obs. Light phase. on H ₂ O
0800					on station, cease obs.
1615					leave station.
1640					begin obs.
1641	WRSP	1			
1750	"	1	E		
1810	"	1	E		
1816					sunset - cease obs.



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

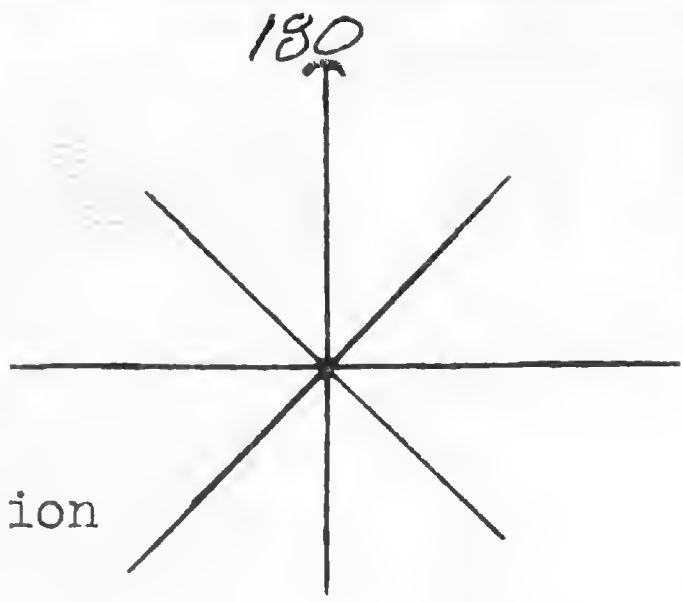
OBSERVERS:

Crossin

Date 12 March 1968
Pg.# 1

SPECIMEN
or

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0603					sunrise
0640					Begin obs.
FF 0725	Sooty tern Fairy tern Wedgetail Ph.I. / Tahiti P. Sm. Pterodroma	300 1 15 3 7			ad's. dark ph. sooties alternately rising & sweeping low to feed over milling tuna. large school of flying fish taking to air about (or prob. in advance of) milling tuna. prob. skipjack.
0735					split for breakfast.
0745					resume obs.
0845	FFP Sm. Ptero.	1 2	S		
0925	WRSP	1	S		
1050					on station
1400					begin obs. wind rising - now up to 35 K.
1452	WRSP	1	E		prob. Leach's.
1457	Bl. w. Petrel	1	S		gray head, black margin to underwings, somewhat of a dark chest band.
1512	WRSP	2	S		
1514	U	1	E		
1600					on station
1818		55			



Ship
Direction

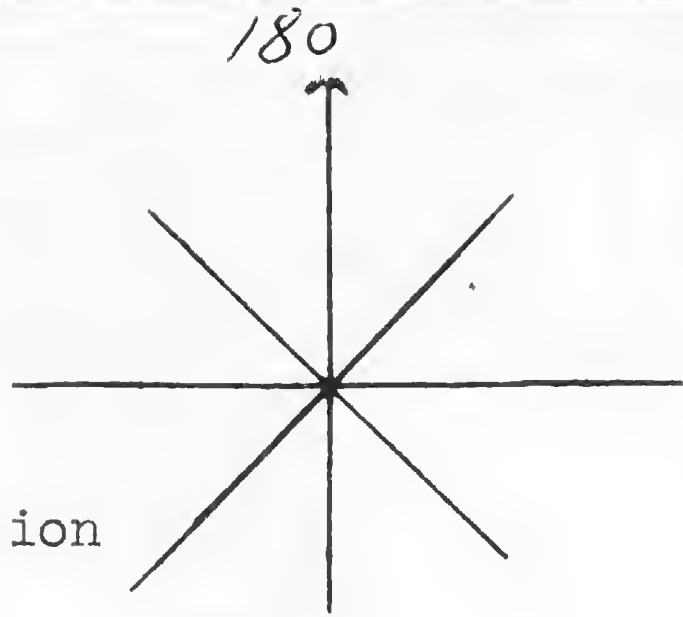
SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS: Crossin

Date 13 March 1968
Pg.# 1

SPECIMEN
or

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0625					Begin obs.
0657	Bk-w Pet.	1	N		
0721	"	1	S		
0730					split for breakfast.
0750					resume watch.
TF 0840	Fairy tern JFP BWP Herald's Pet Bonin Pet?	5 7 6 1 2			traveling. dark heads + back, underwing almost all black.
0921	Bk-w Pet	2	S		
1000					on station
1330					off station
1335	R-TTB	2			ad circling ship.
1600					on station winds up to 30 K sea rough, frequent squalls.



SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Crossin

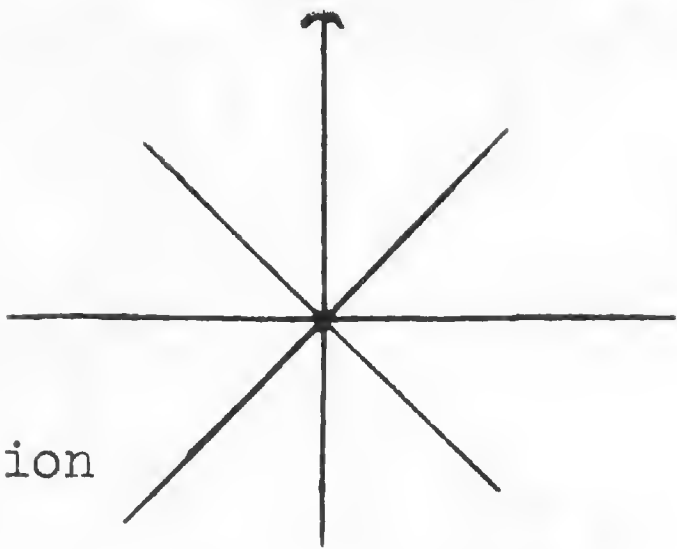
Date 14 March 1968
Pg.# L

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0602					sunrise - begin obs.
0621	S/Sb	1	NE		
0633	B-W Pet	1	E		
0730					split for breakfast
0820					resume obs.
0838	JFP	1	N		
0842	Sm. Pterod	1	N		looked to be all white underwings
0930					cease obs. on station
1630					off station
1645					begin obs.
TF 1700	Phalarope sp.	5	N		
1702	B-W Pet	1	N		
1715					change direction to 330°
1810	Wedgetail	1	S		dark phase
1816					sunset

330°

Ship
DirectionSMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Crossin

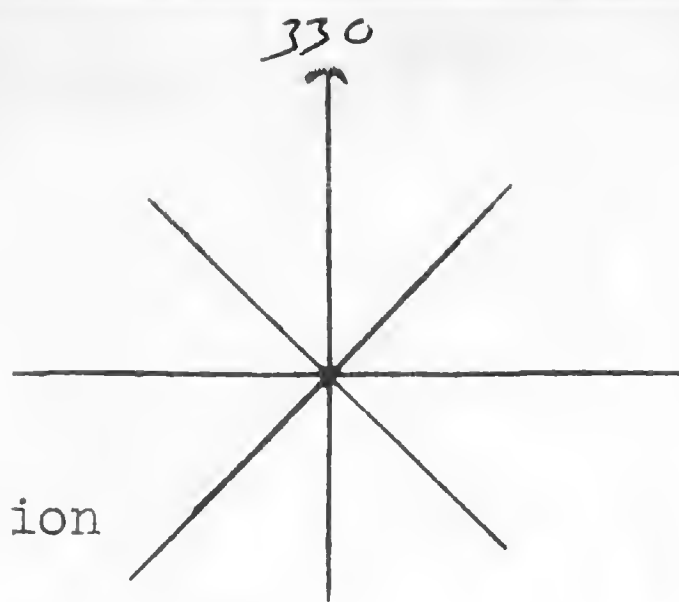
Date 15 March 1968

Pg. # 1

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0606					Sunrise - begin obs.
0642	RTTB	1	ad		
0647	^{sm.} Pterodroma sp	1	NW		appeared all dark above with very dark underwing
0720	" "	1	E		" " " " " " " "
0730					split for breakfast
0800					resume obs.
0802	JFP	1 1	N		
0810	shear/Pet	1	NW		gray above, gleaming white below, high arcing w/ considerable wing beat -
0825	Sooty Tern	1	NW		ad. small petrel size.
0855	JFP	1	SW		
0857	Pterodroma	1	S		white below - way out.
0915	RTTB	1			ad.
1000					cease obs.
1200					Open obs.
1242	Phoenicops Pet	1	SW		slight white on underwing, whitish on throat, def. not tabularis.
1300					split for skinning birds
1345					resume obs.
1355	RTTB	1			collected Imm. ♀
1431	Phalaropus sp	2	W		
1445	WTTB	1			ad, calling.
1500					cease obs.
1600					Open obs.
1601	RTTB	1			on H ₂ O
1602	WTTB	1			were circling ship.
1625	RTTB	1			ad collected - Brian
1630					cease obs.



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:
Crossin

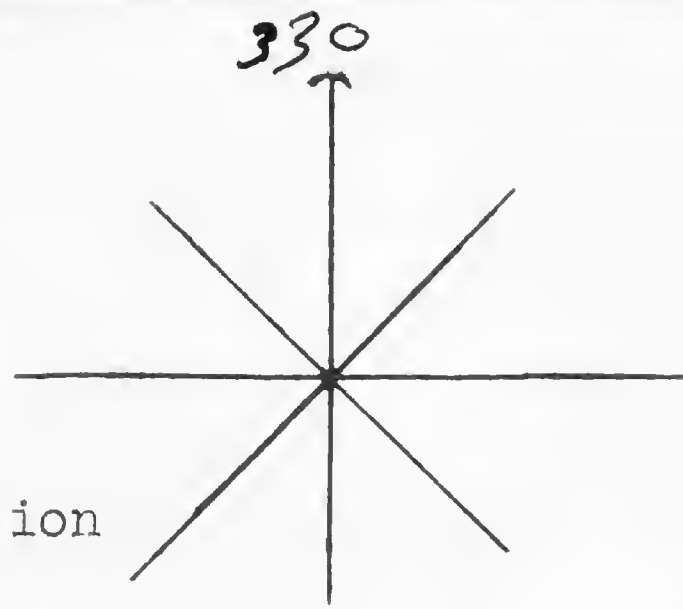
Date 16 March 1968
Pg.# 1

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0616					Sunrise - begin obs.
0637	Wh-th-SP	1	NW		Kicking off water, good obs.
0642	Bl-w Pet	1	SE		
C 0715	RTTB	1			collected collected Imm.
0730					split for breakfast
0800					resume obs.
0825	RTTB	1	S		Circled ship 3 times.
0845	pale-foot shear	1	SW		
0900	Dark-rump Petrel	1	SE		
0903	"	1	SE		
FF 0915	Sooty Tern	39			1 Imm, 38 ads. over schools of flying fish - Notuna seen, but undoubtedly these were below surface driving the flying fish up.
0945	" "	1	NW		Imm.
0955	WRSP	1	NW		
1000					close obs.
1200					open obs.
C 1200	RTTB	1			collected Imm.
1230	RTTB	2			close obs.
1300					resume obs.
1400					
1500	WRSP	1	NW		
1515	wedge-tail	1	E		dark phase
1517	WRSP	1	NW		
1620					cease obs.

Sea med-rough.
few clouds. warm
beautiful full moon!



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Crossin + Bvian

Date 17 March 1968

Pg.# 1

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

0700 ————— Begin obs.

0701 RTTB 1 CE ——— circling ship

0710 wh-th-SP 1 ——— following in wake

0711 Phalarope sp 2 CE ———

0820 Wedgetail 1 SE ——— dusk phase

0855 shorebird sp. 1 NW ——— possibly Ruddy Turnstone

1027 " " 1 NW ——— different from 0855

1043 Leach's SP. 1 SE

1043 Phalarope sp 1 ——— on H₂O

1130 ————— stop obs.

1400 ————— open obs.

1407 Leach's SP. 1 CE ———

1455 WRS P 1 W

1518 WRS P 1 N ~~scribble~~

1525 Phalarope sp. 1 NW

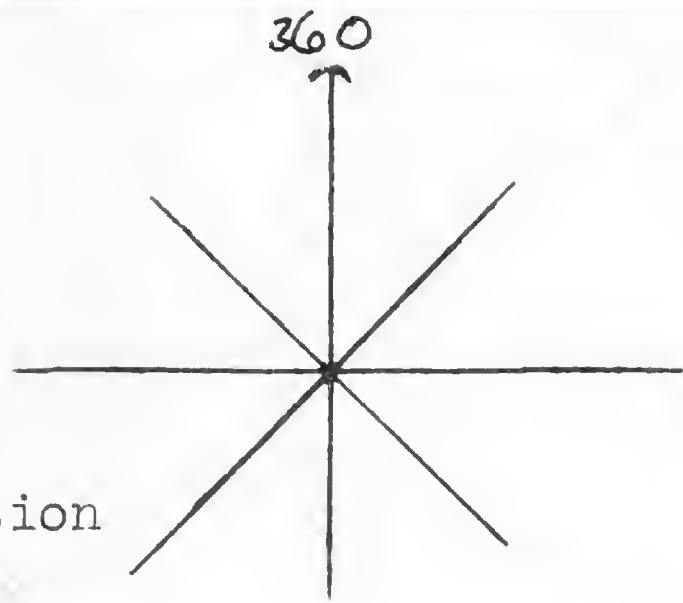
1556 WRS P 1 CE ———

1610 " " 1 ———

1611 Phalarope sp. 1 ——— off H₂O

1630 ————— cease obs

1700 ————— on station



Ship
Direction

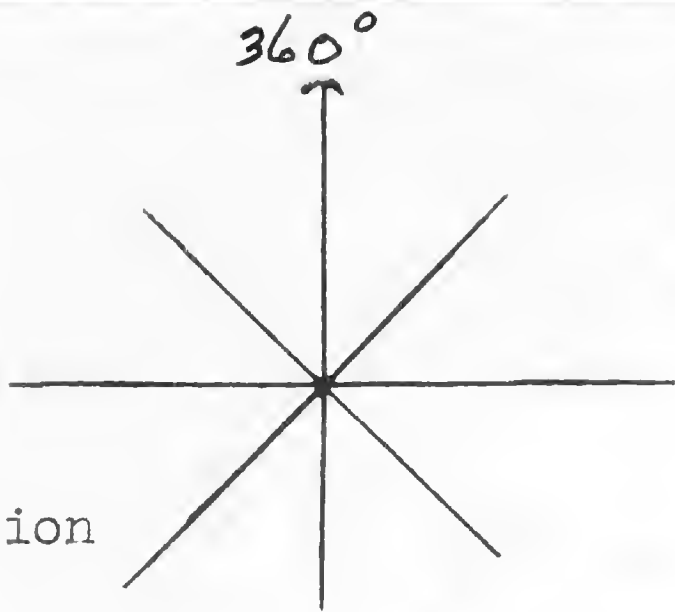
SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:
Crossin

Date 18 March 1968
Pg.# 1

SPECIMEN
or

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0630	1330				on station
1350					begin obs. <u>Pterodroma leucophaea</u> fww
1413	WRSP	1	N		
1430	Bonin I. Pet	1	W		nearly positive on Leach's. black
1443	Leach's SP	1	NE		dark head, light grey dorsal, prom. ^{black} underwing margins
1447	WRSP	1	S		
FF 1525	Sooty tern	6			ad's. } feeding over tuna. BIP. dark head, light back, Prom. black margins on und-wing.
	Fairy Tern	2			
	Bonin I. Pet.?	1			
1543	Fairy Tern	1	N		feeding, (diving to surface)
1610	WTh. SP	1			
1615					close obs. ship on station.



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Crossin

Walt Brian

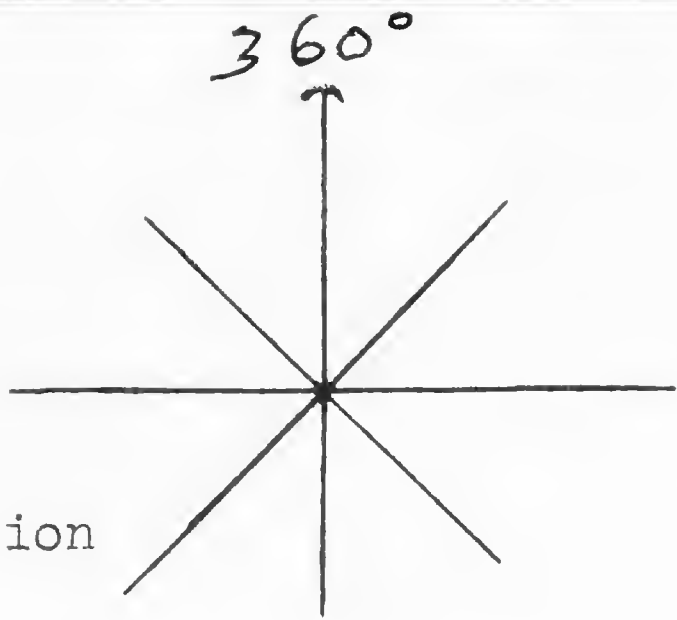
Date 19 March 1968

Pg.# 1

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0640					sunrise
0650					open obs.
0659	Fairy Tern	1	W		
0730	Leach's SP	1			feeding about a shark.
0755	RTTB	1	W		ad.
0800					on station. cease obs.
0940					begin obs.
0945	WRSP	4	W		
0951	"	2	W		
1003	"	1	W		
1011	"	2	W		
1018	"	1	W		
1022	"	2	W		
1027	Large Pterod	1	W		
1029	WRSP	1	W		
1030					on station
1115					skiff in - Walt + I -
C 1120	Leach's SP	1			collected, random swimming, no birds.
C 1125	"	1			
C 1130	"	1			
C 1135	"	1			
C 1140	"	1			
C 1145	"	1			
C 1200	Slender-bill Shear.	1			
1230					skiff in
1330					begin obs from ship.
1335	Leach's SP	1	W		
1412	" "	1	S		
1415	WRSP	1	W		
1417	Leach's SP	1	N		
1421	" "	1	W		
1423	WRSP	1	NE		
1427	"	1	SW		
1435	"	3	W		



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Crossin

Date 19 March 1968

Pg.# 2

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

1440 White-wing
Petrel

1

N

1455 Fairy Tern
sooty tern

3

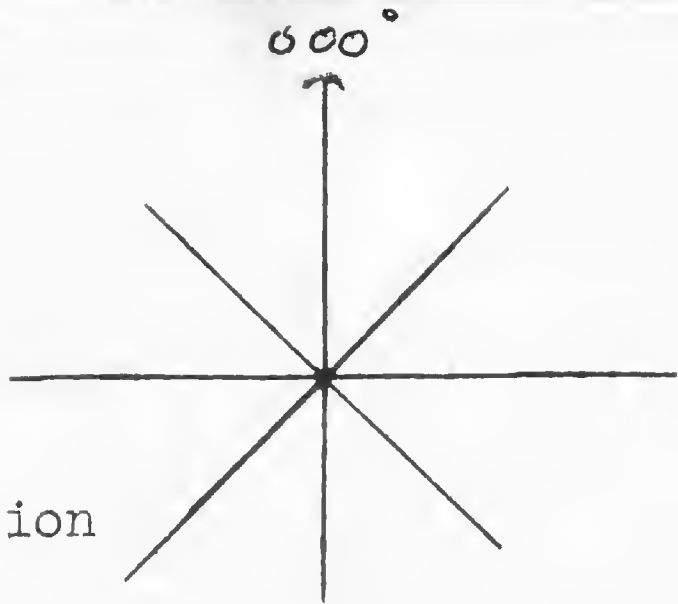
Imm

1500

apparently a weird race of white wing.
dark of creases extending way below
almost to throat. very light wing
coverts almost in a W (immature) and
almost black underwings.

feeding.

on station, cease obs.



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:
Crossin

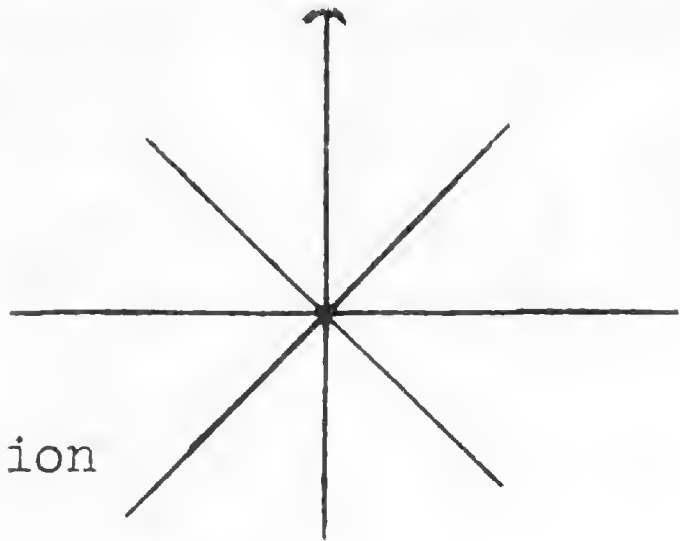
Date 20 March 1968
Pg.# ()

SPECIMEN
or

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0640					sunrise - begin obs -
0654	JFP	1			_____
0710	Leach's SP	1	N		
0711	WRSP	1	E		
0725					split for breakfast - on station at 0730
0800					skiff in
C 0805	Leach's SP	1			collected
C 0810	Red Phalarope	1			"
C 0815	" "	1			"
C 0820	Leach's SP	1			"
0825	Pale-footed Shear	1			hit + knocked into water, only to get up again, fly off + could not be outrun with skiff side gun.
C 0830	Leach's SP?	1			collected
C 0845	" "	1			"
C 0920	" "	1			"
C 1015	Red Phalarope	1			"
C 1020	Leach's SP	1			"
C 1030	"	1			"
1125	WRSP	1	seen		
1128	"	1	"		skiff in.
1200					
1515					begin ship obs.
1542	slender-bill shear	2	NW		said looks at under wings.
1555	WRSP	1			_____
1600					on station, cease obs -
1730					off station, begin obs.
1815	WRSP	2			_____
1830	RTTB	1			ad.
1835	"	1			_____
1845	WRSP	2	N		
1847					sunset

skiff
oil
skiff

360°



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Crossin

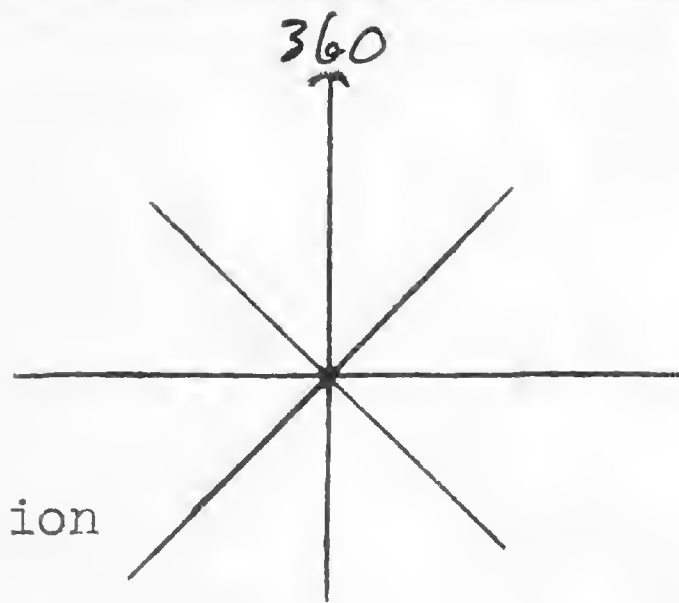
Date 21 March 1960
Pg.# 1

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

0629					sunrise - begin obs.
0653	WRSP	1			
0710	Leach's SP	1	E		came in to inspect ship's garbage in wake.
0730					split for breakfast
0742					resume obs.
0800					on station - stop obs.
1045					skiff in - stick out
c 1050	Salpenger SP	1			collected - ad
c 1055	Sooty Tern	1			skiff out
1145					skiff out
1500					Physeter Catodon 12
c 1835	RTTB	1			collected - Tim Courteworth w/ pistol.

on station practically
all day
skiff
1 hr.



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

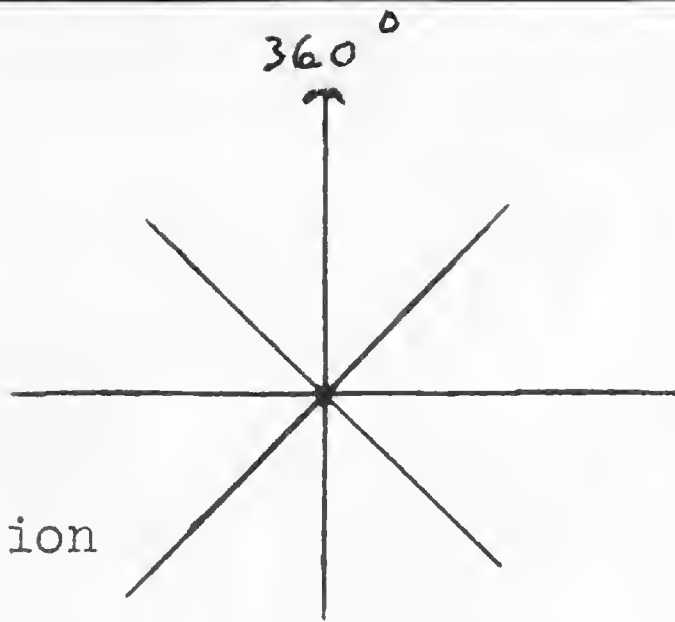
Crossin

Date 22 March 1968
Pg.# 1

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

0638					Sunrise - begin obs
0715	Leach's SP	2			on + off H ₂ O.
0730					split for breakfast.
0745					resume obs.
0755	WRSP	1			
0800					on station, cease obs.
1215					off station - begin obs.
1222	JFP	1			
1225	"	2	E		molting body + flight
1240	Shearwater sp.	1	S		larger than wedgetail, some white below, possibly pink-foot shear.
1350	Pale-foot shear	1			
1405	"	1			working over 6-7' foot shark
1435	wedgetail	1	N		joined other out in front of ship.
1441	Red Phalarope	1			dk. ph.
1500					on the O
1812					close obs. on station
					open obs off station
1820	WRSP	1	N		
1827	"	1	N		
1842	"	1	N		
1845					Sunset



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:
Crossin

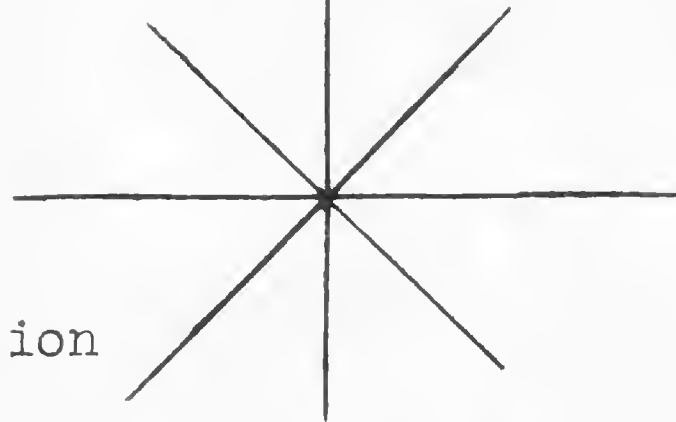
Date 23 March 1968
Pg.# 1

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

0638					sunrise - begin obs.
0639	wedgetail	1	N		dark ph.
0640	sooty tern	1	N		ad.
0642	JFP	1			on water - some molt in flights + body.
0645	Wedgetail	1	E		dk. ph.
0650	Phoenix Is. Pet	1			on H ₂ O
0702	WRSP	1	S		
0715	JFP	1			
0730					split for breakfast.
0740					on station
1500					off station - begin obs.
1533	Galapagos SP	1	N		
1534	Phalarope sp	2	W		
1555	Galapagos Leucis	1 1	<u> </u> <u> </u>		
1600					on station, cease obs.

360°



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:
Crossin

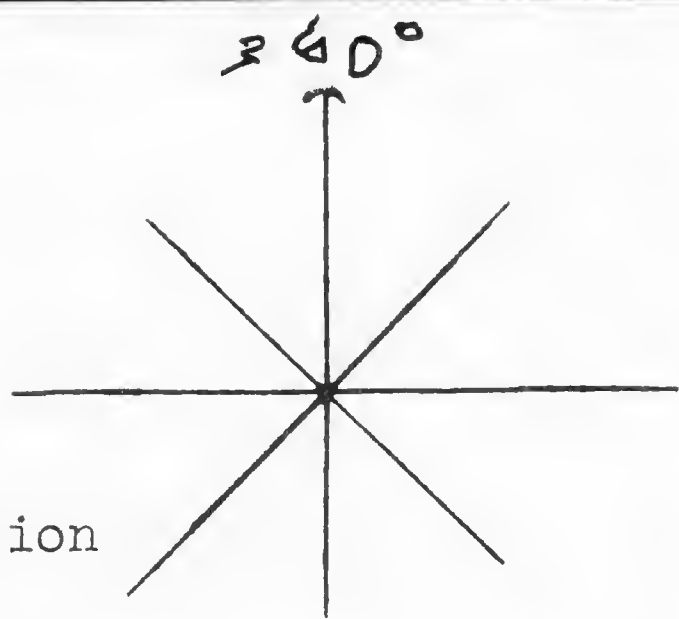
Date 24 March 1968
Pg.# 1

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0637					sunrise
0655					begin obs -
0707	WRSP	1	N		
0712	"	1	N		
0725	Shear/Pet	1			
0730					split for breakfast
0745					resume obs
0752	wedgetail	1	S		dark ph.
0815	JFP	1	SW		
0823	Leach's SP	1	N		
0845	WRSP	1	S		
0902	"	1	N		
0917	JFP	1	N		
0928	WRSP	1	N		
0933	JFP	1	S		molting on neck + flight feathers
0934	WRSP	4			on 428
0941	WRSP	1	N		
	Phalarope sp.	1	N		
0943	WRSP	2	N		
0956	"	2	N		
1000					on station, cease obs
1300					off station, resume obs
1306	JFP	1	E		
1307	WRSP	2			
1315	"	1	N		
1321	"	2			on 420
1338	"	1	N		
1343	Phalarope sp.	1			on 420
1345	JFP	1	NE		
1357	WRSP	2	N		
1400	Pale-foot S	1	E		
1404	Wedgetail	4			off 420, 2 lt ph, 2 dk ph.

Rain
squalls



SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

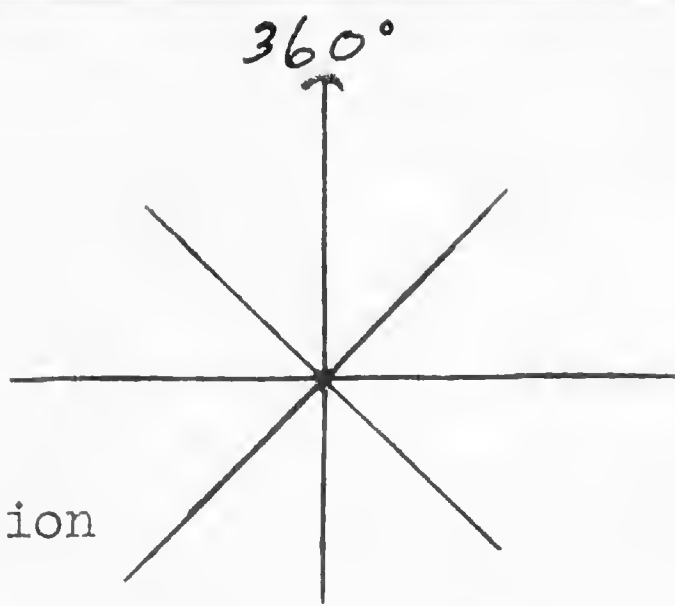
Crossin

Date 24 March 1968
Pg.# 2

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

1410	WRSP	1	NE	
1411	"	4		on H ₂ O, appear to be 3 Leach's, 1 <i>Galapagos</i>
1416	"	1	N	
1435	"	1		on H ₂ O Leach type
1450	"	2		on H ₂ O Leach type
1454	<i>Phalaropus</i>	1		on + off H ₂ O
1456	JFP	1		on H ₂ O, molt, tail, wing & body
1500				close obs.



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Crossin

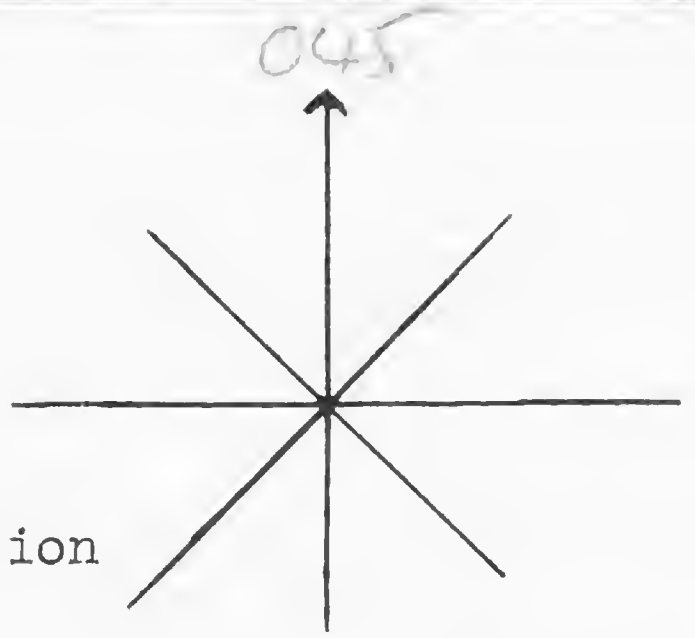
Date 25 March 1968

Pg.# 1

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

0629					sunrise - on station	Rain
0830					leave station - begin obs.	
0854	Ph. Is/Tahiti Pet.	1	S			
0855	Wedgetail	2	W		light ph.	
0905	"	1	S		" "	
0925	WRSP	1	N			
1000						Violent rain squalls
1740					on station - cease obs.	
					off station - begin obs.	
1750	JFP	1				
1759	wedgetail	2	N		on track, molt in tail + Alulae (sec. + prim).	
1812	WRSP	1	N		light ph.	
1815	wedgetail	1	W		light ph.	
1817	"	1	SW		" "	
1818	WRSP	1	N			
1820	RTTB	1				
1825	WRSP	1	N			
18 48 ³⁹						Sunset, cease obs.



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:
Crossin

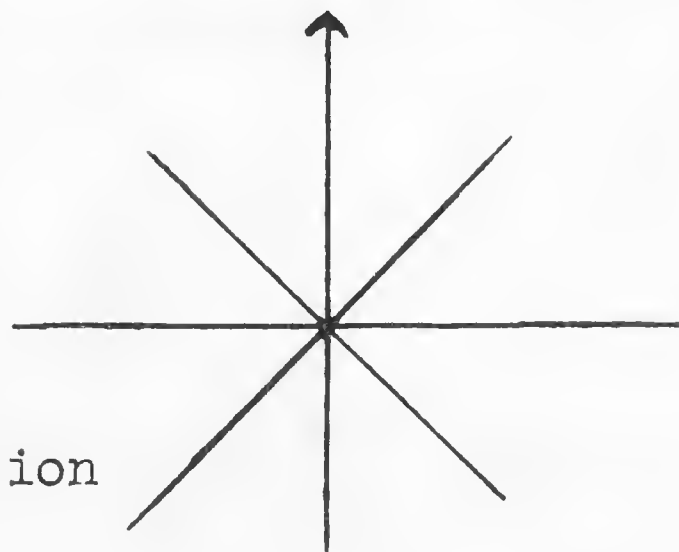
Date 26 March 69
Pg.# 1

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

0627					5 birds - begin obs
0630	Wedgetail	1	E		light phase
0642	"	1	SE		
0646	Baldpate	2	E		
0658	WRSP	1	W		
0701	"	1	W		
0729	"	1	NE		
0736	Wedgetail	1	SE		light phase
0737					split for breakfast
0747					resume obs.
0755	WRSP	1	NE		
0757	Wedgetail	1	SW		light ph.
0801	WRSP	1	N		
0804	Wedgetail	1	SW		light ph.
0808	WRSP	1	SW		
0813	Parasitic Jaeger	1			more or less int. ph.
0854	WRSP	1	NE		
0900					cease obs.
1430					off station - begin obs.
TF 1435	Sooty Tern	3			ad.
	Wedgetail	2			1 lt ph, 1 dk ph. traveling
1448	Phalarope	1	NW		
1455	WRSP	1	E		
1502	"	1	E		
1514	"	1	W		
1520	"	1	W		
1525	"	1	NW		
1532	"	2	E		
1532	Wedgetail	1	E		lt ph.

045



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Crossin

Date 26 March 1968
Pg.# 2

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

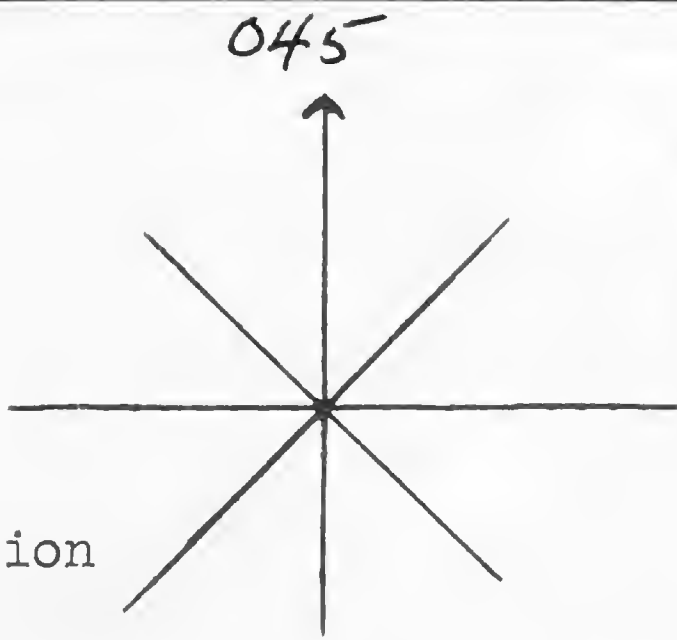
1540 WRSP 1 SE

1545 " 1 E

1548 " 1 E

1600

on Salween



Ship
Direction

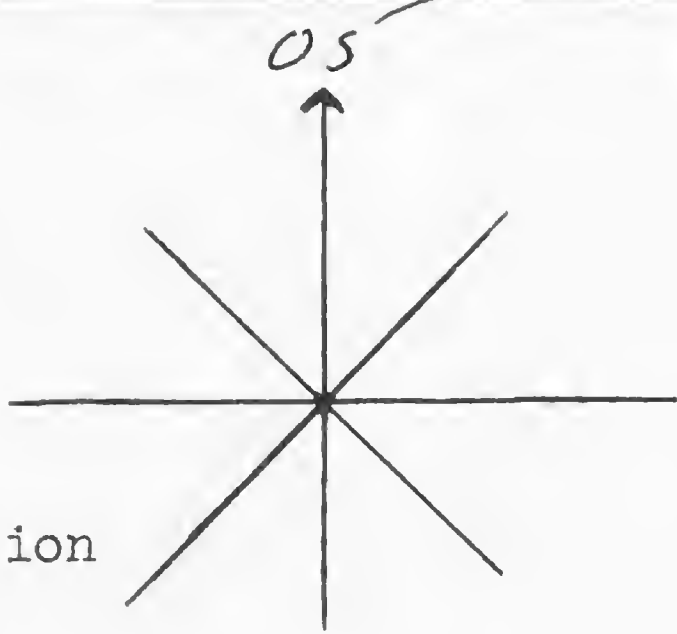
SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:
Crossin

Date 27 March 1968
Pg.# 1

SPECIMEN
or

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0622					Sunrise - begin obs.
0650	Wedgetail	1	SW		lt. ph.
0651	Pom. Jaeger	2	SE		1 dk ph., 1 lt. ph.
0654	Wedgetail	1	E		lt. ph.
0655	White-necked Petrel	1	SE		good views - this bird was in full/new plumage as compared to the molting JFP.
0719	WRSP	1	W		
0730					split for breakfast.
0745					resume obs.
0828	RTTB	1			ad. following ship.
TF 0836	WRSP	5	NE		traveling flock.
0852	"	1	NW		appeared to be Leach's by flight, size etc., but rump showed only a tiny amount of white.
0858	Storm Petrel sp.	1	W		
0904	WRSP	1	NE		very fast erratic, all dark storm petrel.
0943	"	3	NE		Leach type, but very little white on rump. all w/ prominent white rumps.
1000					on station, cease obs.
1520					off station, begin obs.
1547	WRSP	1	W		
1552	Sooty Tern	1	W		ad.
1600					on station, cease obs.
1750					off station, resume obs.
1753	Sooty Tern	1	NE		ad.
1808	RTTB	2			ad's following ship.
1812	WRSP	1	NE		
1815	Wedgetail	1	SW		lt ph.
1820	WRSP	1	W		
1828					Sunset, cease obs.



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Crossin

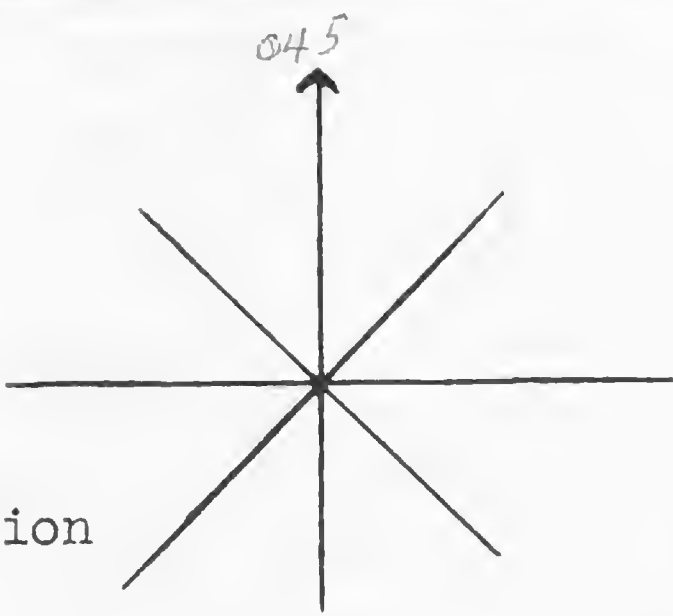
Date 28 March 1968
Pg.# 1

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0612					Sunrise
0655					begin obs.
0730					split for breakfast
0740					resume obs.
0751	wedgetail	1	NE		dark ph.
0830	Leach's SR	1	W		subviews
0920	wedgetail	1	W		dark ph.
0940	Frigate	1	SW		ad ♂
0952	wedgetail	1	SW		dk. ph.
1000					on station, cease obs.
1330					resume obs
1345	Manx Shear	1	NE		no rump patches, slight brownish cast to upper plumage
1423	wedgetail	1	SW		dk ph
1440	"	1	E		light ph.
FF 1505	sooty tern	42			} over jumping tuna.
	wedgetail	4			
1600					on station, cease obs.

sky partly cloudy
sea 1/2-2' swells
good viewing, but
nothing to view.



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Crossin

Date 29 March 1968

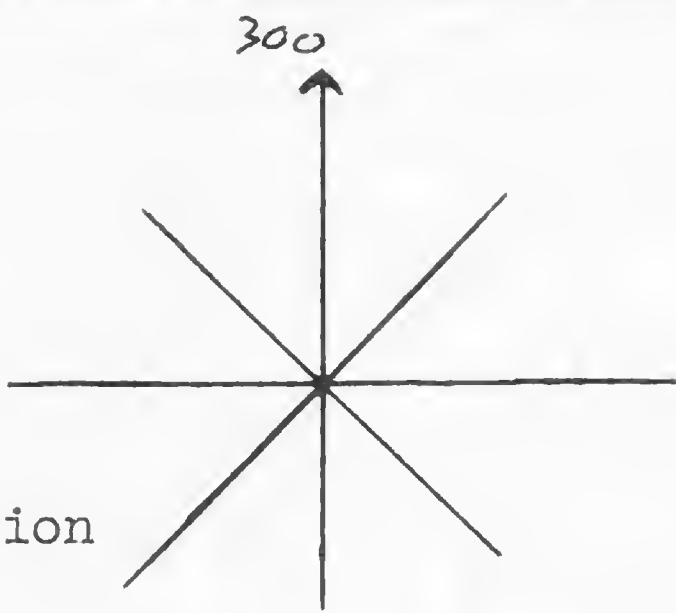
Pg.# 1

SPECIMEN

or

TIME SPECIES # DIR. BAND NO. REMARKS

0603					sunrise - begin obs.
0610	Red-foot Booby	1	NE		Imm.
0621	Red-foot Booby	2	NE		Imm.
0707	Frigate	1	SW		ad ♀
0710	"	1	SW		ad ♀
0739					fishing boat.
0813	Storm Petrel SP	1	W		dark rump, leach size
0840	WRSP	1	W		prob. heach's.
0847	Large Shearwater	1	W		white below
0912	Pom. Jaeger	1	W		fol. ship. LK. ph.
0936	Storm Petrel	1	SW		appeared all dark.
1000					on station, cease obs.
1400					off station, continue obs.
1401	Red-foot Booby	1	NE		Imm.
1409	Red-billed Tropic.	1			on H ₂ O.
1409	WRSP	1	W		
1411	Pom. Jaeger	2	SW		light ph.
1500					on station, cease obs.
1515					off station - begin obs.
1520	WRSP	1	NE		
1525	"	1	NE		
1526	Booby sp.	1	NW		
1545	WRSP	1	W		
1547	Laughing Gull	1	NW		
1550	WRSP	1	E		
1559	Storm Petrel sp.	1	W		looked all dark.
1600					on station - close obs.



SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Crossin

Date 31 March 68

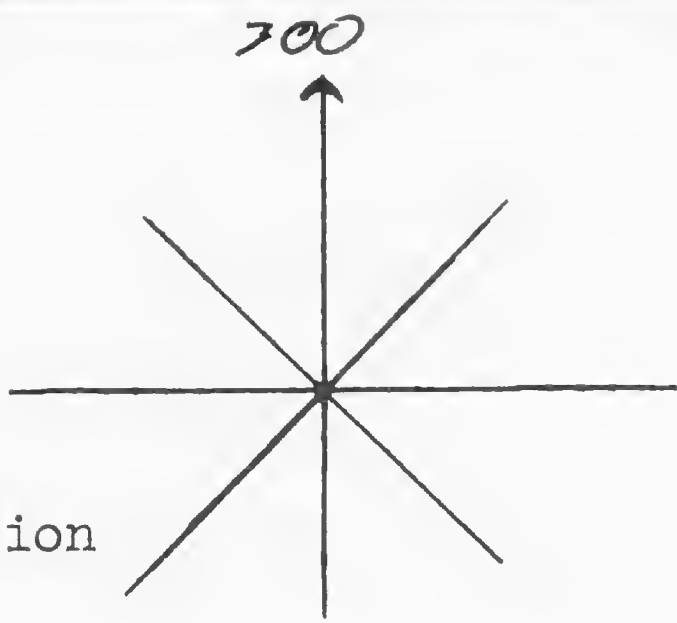
Pg.# 1

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
					Leave Manzanillo 0900
1245					Begin obs.
1247	Phalarope sp	1	NW		
1248	Br. Pelican	1	N		
1250	Br. Booby	3			2 ad., 1 Imm, feeding.
FF 1300	Br. Booby	500+			practically all ad's., actually no accurate count possible, as birds too scattered. all feeding in scattered groups over maxilla sailfish - about 13 of these seen.
	Sooty Tern	9+		ad.	
	Laughing Gull	200+			
	Bl-tufted Booby	11+			
FF 1307	Brown Booby	12			feeding over a shark
	Sooty Tern	11		ad's	
FF 1315	Br. Booby	8		ad's	feeding over 4 sailfish
SF 1317	" "	6			ad., sitting on H ₂ O.
TF 1318	Phalarope sp	11	NW		
FF 1322	Br. Booby	17			over fish, but too far out to tell what bird.
	Laughing Gull	25+			
1331	Br. Booby	1	NW		ad.
TF 1342	" "	9	NW		ad's.
1345					close obs.
1645					open obs.
1646					1 whale, only spout seen
TF 1655	Sooty Tern	6	NW		ad's.
1703	Phalarope sp.	1	NW		
1705	Sooty tern	1	NW		ad.
FF 1712	Br. Booby	19	ad	} no fish noted, but fairly far out	
	Sooty Tern	37	ad.		
	Pom Jaeger	1	dk ph.		
	Phalarope sp.	2			





Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

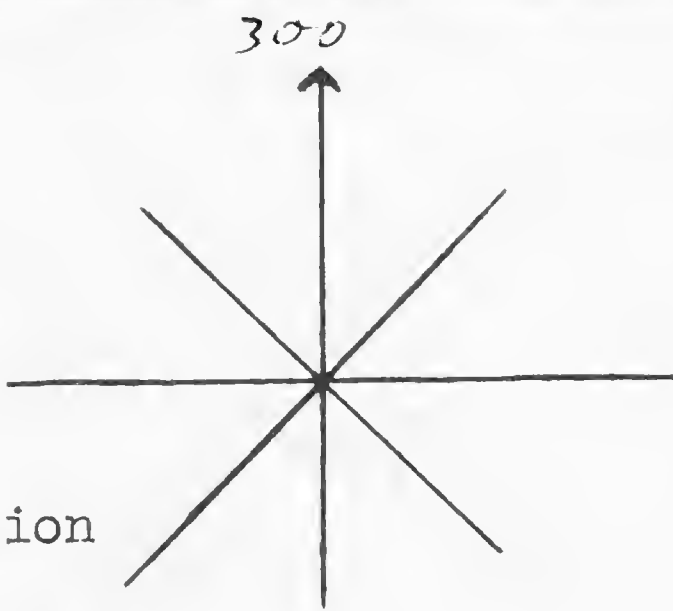
OBSERVERS:
Crossin

Date 1 April 1968
Pg.# 1

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

	1035				begin obs.
	1055	Phalarope sp.	1		on the 0
	1100	Shear water sp.	1	SE	white below
TF	1120	WRSP	5	NW	Leach type
	1127	"	1	N	Leach type
	1132	Townsend's Shear.	1	NW	distinct "rump-patches".
	1135				close obs.
	1545				open obs.
	1559	Sooty Tern	2	NW	ad's., low over the 0
	1602	" "	1	NW	ad " " "
	1628	Cook's Petrel	1	N	grey head & dorsal, pure white underwings.
	1645				close obs.



SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

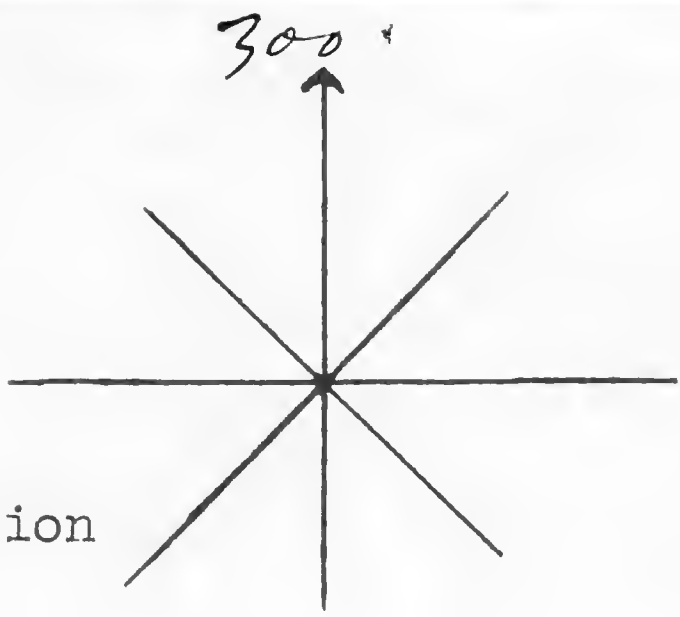
Crossin

Date 2 April
Pg.# 1

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

1300					begin obs.
1312	Phalarope sp	1	W		
1324	Manx Shear	2	NE		no "rump patches", brownish dorsal.
1326	" "	3	W		
1331	" "	1	NE		
1335	Gull sp. Kittiwake sp	1	NW		small, almost white, small ^{Kittiwake?}
1347					1 whale, dark brown, blew once.
1403	Pink foot shear	1			lunged up and bounded; no shape seen.
1421	Manx Shear	8			following in wave on H ₂ O.
1434					turtle. ca. 2' across.
1447	Kittiwakes	2	NW		
1450					1 turtle, ca. 1 1/2' across.
1500					cease obs.
1845					4 Grey Whales - spots spotted approx. 4 mi SW Magdalena Bay.



SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:
Crossin

Date 3 April 68
Pg.# _____

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

1230					begin obs.
1238	Phalarope	3	SW		
1303					Pacific white-sided Dolphin 250 ⁺ 10%
1315	Salmies Gull	1	NW		ID sure; full ad.
1340	S/Sk	1	N		
1350	Phalarope	3	NE		
1415	"	1	W		
1430					close obs.

Date 21 Feb. 1968 Ship Jordan () Cruise No. 76

Organization POBSP/BCF Recorder Capt. Forster

Sunrise: Time 0705 Position: Lat. 26-09, Long. 113-40

Sunset: Time 18~~29~~³³ Position: Lat. 24-30, Long. 112-26

Miles travelled from 0000 hours to sunrise = _____

Miles travelled from sunrise to sunset = 130

Miles travelled from sunset to 2400 hours = _____

TIME OF FIX TYPE OF FIX LATITUDE LONGITUDE

- 1.
- 2.
- 3.
- 4.
- 5.

Hourly Positions:

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

0100						
0200						
0300						
0400						
0500						
0600						
0700	<u>26-10</u>	<u>113-41</u>				
0800	<u>26-01</u>	<u>113-33</u>				
0900	<u>25-49</u>	<u>113-28</u>				
1000	<u>25-36</u>	<u>113-23</u>				
1100	<u>25-23</u>	<u>113-19</u>				
1200	<u>25-12</u>	<u>113-12</u>				
1300	<u>25-03</u>	<u>113-04</u>				
1400	<u>" "</u>	<u>" "</u>				
1500	<u>25-02</u>	<u>113-03</u>				
1600	<u>24-52</u>	<u>112-52</u>				
1700	<u>24-44</u>	<u>112-42</u>				
1800	<u>24-35</u>	<u>112-31</u>				
1900	<u>24-26</u>	<u>112-21</u>				
2000						
2100						
2200						
2300						
2400						

Date 22 Feb 68 Ship Jordan () Cruise No. 76

Organization BCF Recorder Capt Forster

Sunrise: Time ⁰⁶⁴⁷0650 Position: Lat. 22-53, Long. 110-17

Sunset: Time 1815 Position: Lat. 21-32, Long. 108-11

Miles travelled from 0000 hours to sunrise = _____

Miles travelled from sunrise to sunset = 137

Miles travelled from sunset to 2400 hours = _____

TIME OF FIX TYPE OF FIX LATITUDE LONGITUDE

- 1.
- 2.
- 3.
- 4.
- 5.

Hourly Positions:

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

0100						
0200						
0300						
0400						
0500						
0600						
0700	<u>22-51</u>	<u>110-15</u>				
0800	<u>22-45</u>	<u>110-03</u>				
0900	<u>22-39</u>	<u>109-51</u>				
1000	<u>22-32</u>	<u>109-40</u>				
1100	<u>22-26</u>	<u>109-29</u>				
1200	<u>22-18</u>	<u>109-17</u>				
1300	<u>22-10</u>	<u>109-06</u>				
1400	<u>22-03</u>	<u>108-55</u>				
1500	<u>21-56</u>	<u>108-45</u>				
1600	<u>21-48</u>	<u>108-35</u>				
1700	<u>21-41</u>	<u>108-23</u>				
1800	<u>21-34</u>	<u>108-13</u>				
1900						
2000						
2100						
2200						
2300						
2400						

Date FEB. 23 68 Ship Jordan () Cruise No. 76

Organization BCF Recorder Capt Forster

Sunrise: Time 0630 Position: Lat. 20-05, Long. 105-58

Sunset: Time 1759 Position: Lat. 19-04, Long. 104-20

Miles travelled from 0000 hours to sunrise = _____

Miles travelled from sunrise to sunset = 115

Miles travelled from sunset to 2400 hours = _____

TIME OF FIX TYPE OF FIX LATITUDE LONGITUDE

- 1.
- 2.
- 3.
- 4.
- 5.

Hourly Positions:

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

0100						
0200						
0300						
0400						
0500						
0600	<u>20-09</u>	<u>106-02</u>				
0700	<u>20-02</u>	<u>105-53</u>				
0800	<u>19-54</u>	<u>105-43</u>				
0900	<u>19-46</u>	<u>105-34</u>				
1000	<u>19-38</u>	<u>105-25</u>				
1100	<u>19-31</u>	<u>105-17</u>				
1200	<u>19-24</u>	<u>105-08</u>				
1300	<u>19-16</u>	<u>104-59</u>				
1400	<u>19-09</u>	<u>104-49</u>				
1500	<u>19-05</u>	<u>104-37</u>				
1600	<u>ENTERING SAN JUANITO HARBOR</u>					
1700						
1800						
1900						
2000						
2100						
2200						
2300						
2400						

Date FEB. 26, 1968 Ship Jordan () Cruise No. 76

Organization BCF Recorder Capt. Foster

Sunrise: Time 0610 Position: Lat. 17-38, Long. 102-22

Sunset: Time 1746⁷ Position: Lat. 1638, Long. 100-05

Miles travelled from 0000 hours to sunrise =

Miles travelled from sunrise to sunset = 145

Miles travelled from sunset to 2400 hours =

 TIME OF FIX TYPE OF FIX LATITUDE LONGITUDE

- 1.
- 2.
- 3.
- 4.
- 5.

Hourly Positions:

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

0100						
0200						
0300						
0400						
0500						
0600	<u>17-39</u>	<u>102-23</u>				
0700	<u>17-34</u>	<u>102-12</u>				
0800	<u>17-28</u>	<u>102-01</u>				
0900	<u>17-23</u>	<u>101-50</u>				
1000	<u>17-18</u>	<u>101-38</u>				
1100	<u>17-11</u>	<u>101-25</u>				
1200	<u>17-06</u>	<u>101-15</u>				
1300	<u>17-02</u>	<u>101-03</u>				
1400	<u>16-56</u>	<u>100-51</u>				
1500	<u>16-52</u>	<u>100-39</u>				
1600	<u>16-47</u>	<u>100-27</u>				
1700	<u>16-41</u>	<u>100-13</u>				
1800	<u>16-38</u>	<u>100-05</u>				
1900						
2000						
2100						
2200						
2300						
2400						

1120 PICKUP BIRDS 17°06'N 101°22'42W

Date 2-27-68 Ship Jordan () Cruise No. _____

Organization BCF Recorder Prof. Forster

Sunrise: Time 05-57 Position: Lat. 15-37, Long. 101-08

Sunset: Time 17-55 Position: Lat. 14-45, Long. 102-08

Miles travelled from 0000 hours to sunrise = _____

Miles travelled from sunrise to sunset = 81

Miles travelled from sunset to 2400 hours = _____

TIME OF FIX TYPE OF FIX LATITUDE LONGITUDE

- 1.
- 2.
- 3.
- 4.
- 5.

Hourly Positions:

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

0100						
0200						
0300						
0400						
0500						
0600	<u>15-39</u>	<u>101-06</u>				
0700	<u>15-30</u>	<u>101-14</u>				
0800	<u>15-27</u>	<u>101-20</u>				
0900	<u>15-18</u>	<u>101-29</u>				
1000	<u>15-09</u>	<u>101-39</u>				
1100	<u>15-09</u>	<u>101-39</u>				
1200	<u>15-09</u>	<u>101-39</u>				
1300	<u>15-08</u>	<u>101-40</u>				
1400	<u>15-02</u>	<u>101-47</u>				
1500	<u>14-54</u>	<u>101-56</u>				
1600	<u>14-46</u>	<u>102-05</u>				
1700	<u>" "</u>	<u>" "</u>				
1800	<u>14-44</u>	<u>102-10</u>				
1900						
2000						
2100						
2200						
2300						
2400						

Date 2-28-68 Ship Jordan () Cruise No. 76
 Organization BCF Recorder Capt. Forster

Sunrise: Time 0611 Position: Lat. 13-36, Long. 103-17
 Sunset: Time 1804 Position: Lat. 12-30, Long. 104-30

Miles travelled from 0000 hours to sunrise = _____
 Miles travelled from sunrise to sunset = 98
 Miles travelled from sunset to 2400 hours = _____

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

Hourly Positions:

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

0100						
0200						
0300						
0400						
0500						
0600	<u>13-36</u>	<u>103-17</u>				
0700	<u>13-31</u>	<u>103-22</u>				
0800	<u>13-24</u>	<u>103-31</u>				
0900	<u>13-12</u>	<u>103-40</u>				
1000	<u>13-02</u>	<u>103-49</u>				
1100	" "	" "				
1200	" "	" "				
1300	<u>12-57</u>	<u>103-56</u>				
1400	<u>12-49</u>	<u>104-06</u>				
1500	<u>12-40</u>	<u>104-17</u>				
1600	<u>12-32</u>	<u>104-28</u>				
1700	" "	" "				
1800	" "	" "				
1900						
2000						
2100						
2200						
2300						
2400						

Date 29 Feb 1968 Ship Jordan () Cruise No. 76

Organization BCF Recorder Capt. Forster

Sunrise: Time 0616 Position: Lat. 11-04, Long. 105-05

Sunset: Time 1809 Position: Lat. 10-05, Long. 105-01

Miles travelled from 0000 hours to sunrise =

Miles travelled from sunrise to sunset = 58

Miles travelled from sunset to 2400 hours =

 TIME OF FIX TYPE OF FIX LATITUDE LONGITUDE

- 1.
- 2.
- 3.
- 4.
- 5.

Hourly Positions:

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

0100						
0200						
0300						
0400						
0500						
0600	<u>11-07</u>	<u>105-05</u>				
0700	<u>10-54</u>	<u>105-04</u>				
0800	<u>10-44</u>	<u>105-02</u>				
0900	<u>" "</u>	<u>" "</u>				
1000	<u>" "</u>	<u>" "</u>				
1100	<u>10-38</u>	<u>105-03</u>				
1200	<u>" "</u>	<u>" "</u>				
1300	<u>" "</u>	<u>" "</u>				
1400	<u>" "</u>	<u>" "</u>				
1500	<u>" "</u>	<u>" "</u>				
1600	<u>" "</u>	<u>" "</u>				
1700	<u>10-23</u>	<u>105-02</u>				
1800	<u>10-12</u>	<u>105-01</u>				
1900						
2000						
2100						
2200						
2300						
2400						

Date MAR. 1, 1968 Ship Jordan () Cruise No. 76

Organization BCF Recorder Capt. Rensley

Sunrise: Time 06-13 Position: Lat. 8-53, Long. 105-09

Sunset: Time 18-12 Position: Lat. 8-00, Long. 105-12

Miles travelled from 0000 hours to sunrise = _____

Miles travelled from sunrise to sunset = 53

Miles travelled from sunset to 2400 hours = _____

TIME OF FIX TYPE OF FIX LATITUDE LONGITUDE

- 1.
- 2.
- 3.
- 4.
- 5.

Hourly Positions:

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

0100						
0200						
0300						
0400						
0500						
0600	<u>08-55.5</u>	<u>105-09</u>				
0700	<u>8-43.5</u>	<u>105-10</u>				
0800	<u>8-31</u>	<u>105-11</u>				
0900	<u>" "</u>	<u>" "</u>				
1000	<u>8-25</u>	<u>105-13</u>				
1100	<u>" "</u>	<u>" "</u>				
1200	<u>" "</u>	<u>" "</u>				
1300	<u>" "</u>	<u>" "</u>				
1400	<u>" "</u>	<u>" "</u>				
1500	<u>" "</u>	<u>" "</u>				
1600	<u>" "</u>	<u>" "</u>				
1700	<u>8-15.5</u>	<u>105-16</u>				
1800	<u>8-01</u>	<u>105-12</u>				
1900						
2000						
2100						
2200						
2300						
2400						

Date 2 March Ship Stella () Cruise No. 76
 Organization POFSP Recorder RSC

Sunrise: Time 0612 Position: Lat. 16-33, Long. 104-58
 Sunset: Time 1813 Position: Lat. 05-55, Long. 104-50

Miles travelled from 0000 hours to sunrise =
 Miles travelled from sunrise to sunset = 32
 Miles travelled from sunset to 2400 hours =

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

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
0100						
0200						
0300						
0400						
0500						
0600	06-32	104-58				
0700	06-24	104-53				
0800	06-20	104-52				
0900	06-15	104-51				
1000	06-14	104-50				
1100	06-12	104-50				
1200	"	"				
1300	"	"				
1400	06-10	"				
1500	06-06	"				
1600	06-03	"				
1700	06-00	"				
1800	05-57	"				
1900	05-55	"				
2000						
2100						
2200						
2300						
2400						

Date Mar. 3, 1968 Ship _____ (_____) Cruise No. _____

Organization _____ Recorder _____

Sunrise: Time 0611 Position: Lat. 04-28, Long. 104-57

Sunset: Time 1813 Position: Lat. 04-03, Long. 104-55

Miles travelled from 0000 hours to sunrise = _____

Miles travelled from sunrise to sunset = 34

Miles travelled from sunset to 2400 hours = _____

	TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
--	-------------	-------------	----------	-----------

- 1.
- 2.
- 3.
- 4.
- 5.

Hourly Positions:

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

0100						
0200						
0300						
0400						
0500						
0600	<u>4-38</u>	<u>104-57</u>				
0700	<u>4-28</u>	<u>104-58</u>				
0800	<u>04-20</u>	<u>104-58</u>				
0900	" "	" "				
1000	" "	" "				
1100	" "	" "				
1200	" "	" "				
1300	<u>4-22</u>	<u>104-55</u>				
1400	" "	" "				
1500	" "	" "				
1600	" "	" "				
1700	<u>4-14</u>	<u>104-56</u>				
1800	<u>4-04</u>	<u>104-56</u>				
1900						
2000						
2100						
2200						
2300						
2400						

Date Mar 4, 1968 Ship _____ (_____) Cruise No. _____

Organization _____ Recorder _____

Sunrise: Time 6 09 Position: Lat. 2-48, Long. 105-05

Sunset: Time 18 15⁴ Position: Lat. 2-13, Long. 105-12

Miles travelled from 0000 hours to sunrise = _____

Miles travelled from sunrise to sunset = 36

Miles travelled from sunset to 2400 hours = _____

TIME OF FIX TYPE OF FIX LATITUDE LONGITUDE

- 1.
- 2.
- 3.
- 4.
- 5.

Hourly Positions:

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

0100						
0200						
0300						
0400						
0500						
0600	<u>2-48</u>	<u>105-05</u>				
0700	<u>2-40</u>	<u>105-06</u>				
0800	<u>2-30</u>	<u>105-07</u>				
0900	" "	" "				
1000	" "	" "				
1100	" "	" "				
1200	" "	<u>105-10</u>				
1300	" "	" "				
1400	" "	" "				
1500	" "	" "				
1600	" "	<u>105-17</u>				
1700	<u>2-22</u>	<u>105-15</u>				
1800	<u>2-15</u>	<u>105-13</u>				
1900						
2000						
2100						
2200						
2300						
2400						

Date Mar 5, 1968 Ship _____ (_____) Cruise No. _____

Organization _____ Recorder _____

Sunrise: Time 6 08 Position: Lat. 0-58N, Long. 105-02

Sunset: Time 18 15 Position: Lat. 0-25N, Long. 105-10

Miles travelled from 0000 hours to sunrise = _____

Miles travelled from sunrise to sunset = 35

Miles travelled from sunset to 2400 hours = _____

TIME OF FIX TYPE OF FIX LATITUDE LONGITUDE

- 1.
- 2.
- 3.
- 4.
- 5.

Hourly Positions:

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

0100						
0200						
0300						
0400						
0500	Temp. change, less isotherms - water Humboldt current					
0600	0-58N	105-02				
0700	0-53N	105-02				
0800	0-42N	105-02				
0900	" "	" "				
1000	" "	" "				
1100	" "	" "				
1200	0-36N	105-06				
1300	" "	" "				
1400	" "	" "				
1500	" "	" "				
1600	0-39N	105-12				
1700	0-37N	105-12				
1800	0-27N	105-11				
1900						
2000						
2100						
2200						
2300						
2400						

Date Mar 6, 1968 Ship _____ (_____) Cruise No. _____

Organization _____ Recorder _____

Sunrise: Time 6-08 Position: Lat. 0-54, Long. 105-05

Sunset: Time 18-16 Position: Lat. 1-27, Long. 105-15

Miles travelled from 0000 hours to sunrise = _____

Miles travelled from sunrise to sunset = 35

Miles travelled from sunset to 2400 hours = _____

TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
-------------	-------------	----------	-----------

- 1.
- 2.
- 3.
- 4.
- 5.

Hourly Positions:

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

	SOUTH	WEST				
0100						
0200						
0300						
0400						
0500						
0600	<u>0-54</u>	<u>105-05</u>				
0700	<u>1-01</u>	<u>105-06</u>				
0800	<u>1-11</u>	<u>105-06</u>				
0900	"	"				
1000	"	"				
1100	<u>1-13</u>	<u>105-09</u>				
1200	"	"				
1300	"	"				
1400	"	"				
1500	"	"				
1600	<u>1-14</u>	<u>105-17</u>				
1700	<u>1-20</u>	<u>105-16</u>				
1800	<u>1-29</u>	<u>105-14</u>				
1900						
2000						
2100						
2200						
2300						
2400						

Date Mar 7 68 Ship Jordan (032) Cruise No. 76

Organization RCE Recorder Capt Foster

Sunrise: Time 605 Position: Lat. 2-57s, Long. 104-57w

Sunset: Time 1815 Position: Lat. 3-43s, Long. 105-05w

Miles travelled from 0000 hours to sunrise = _____

Miles travelled from sunrise to sunset = 47

Miles travelled from sunset to 2400 hours = _____

TIME OF FIX TYPE OF FIX LATITUDE LONGITUDE

- 1.
- 2.
- 3.
- 4.
- 5.

Hourly Positions:

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

0100						
0200						
0300						
0400						
0500						
0600	<u>2-57</u>	<u>104-57</u>				
0700	<u>3-05</u>	<u>104-59</u>				
0800	<u>3-16</u>	<u>104-59</u>				
0900	" "	" "				
1000	" "	" "				
1100	" "	" "				
1200	<u>3-21</u>	<u>105-00</u>				
1300	" "	" "				
1400	" "	" "				
1500	" "	" "				
1600	<u>3-21</u>	<u>105-08</u>				
1700	<u>3-30</u>	<u>105-06</u>				
1800	<u>3-41</u>	<u>105-04</u>				
1900						
2000						
2100						
2200						
2300						
2400						

Date Mar 8 Ship _____ (_____) Cruise No. _____

Organization _____ Recorder _____

Sunrise: Time 606 Position: Lat. 5-08, Long. 104-55
 Sunset: Time 1816 Position: Lat. 5-52, Long. 104-57

Miles travelled from 0000 hours to sunrise = _____
 Miles travelled from sunrise to sunset = 44
 Miles travelled from sunset to 2400 hours = _____

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

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
0100						
0200						
0300						
0400						
0500						
0600	<u>5-08</u>	<u>104-55</u>				
0700	<u>5-15</u>	<u>104-55</u>				
0800	<u>5-26</u>	<u>104-56</u>				
0900	"	"				
1000	"	"				
1100	"	"				
1200	<u>5-33</u>	<u>104-56</u>				
1300	"	"				
1400	"	"				
1500	"	"				
1600	"	"				
1700	<u>5-37</u>	<u>104-56</u>				
1800	<u>5-49</u>	<u>104-56</u>				
1900						
2000						
2100						
2200						
2300						
2400						

Date 9 ^{March} FEB, 1968 Ship _____ (_____) Cruise No. _____

Organization _____ Recorder _____

Sunrise: Time 6-05 Position: Lat. 7-40s, Long. 105-00
 Sunset: Time 18-16 Position: Lat. 8-27s, Long. 104-57

Miles travelled from 0000 hours to sunrise = _____
 Miles travelled from sunrise to sunset = 47
 Miles travelled from sunset to 2400 hours = _____

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

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
0100						
0200						
0300						
0400						
0500						
0600	<u>7-39</u>	<u>105-00</u>				
0700	<u>7-51</u>	<u>105-00</u>				
0800	<u>8-03</u>	<u>105-00</u>				
0900	"	"				
1000	"	"				
1100	<u>8-08</u>	<u>105-00</u>				
1200	"	"				
1300	"	"				
1400	"	"				
1500	"	"				
1600	"	"				
1700	<u>8-14</u>	<u>104-57</u>				
1800	<u>8-25</u>	<u>104-57</u>				
1900						
2000						
2100						
2200						
2300						
2400						

Date MAR. 10 1968 Ship _____ (_____) Cruise No. _____

Organization _____ Recorder _____

Sunrise: Time 6-04 Position: Lat. 9-52s, Long. 105-03

Sunset: Time 18-16 Position: Lat. 10-35s, Long. 104-56

Miles travelled from 0000 hours to sunrise = _____

Miles travelled from sunrise to sunset = 43

Miles travelled from sunset to 2400 hours = _____

TIME OF FIX TYPE OF FIX LATITUDE LONGITUDE

- 1.
- 2.
- 3.
- 4.
- 5.

Hourly Positions:

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

0100						
0200						
0300						
0400						
0500						
0600	<u>9-52</u>	<u>105-03</u>				
0700	<u>10-02</u>	<u>105-02</u>				
0800	<u>10-13</u>	<u>105-02</u>				
0900	<u>"</u>	<u>"</u>				
1000	<u>"</u>	<u>"</u>				
1100	<u>"</u>	<u>"</u>				
1200	<u>10-19</u>	<u>104-52</u>				
1300	<u>"</u>	<u>"</u>				
1400	<u>"</u>	<u>"</u>				
1500	<u>"</u>	<u>"</u>				
1600	<u>"</u>	<u>"</u>				
1700	<u>10-23</u>	<u>104-57</u>				
1800	<u>10-33</u>	<u>104-56</u>				
1900						
2000						
2100						
2200						
2300						
2400						

Date Mar 11, 1968 Ship _____ (_____) Cruise No. _____

Organization _____ Recorder _____

Sunrise: Time 6-08 Position: Lat. 11-57, Long. 105-00

Sunset: Time 18-16 Position: Lat. 12-46, Long. 105-00

Miles travelled from 0000 hours to sunrise = _____

Miles travelled from sunrise to sunset = 49

Miles travelled from sunset to 2400 hours = _____

	TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
--	-------------	-------------	----------	-----------

- 1.
- 2.
- 3.
- 4.
- 5.

Hourly Positions:

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

0100						
0200						
0300						
0400						
0500						
0600	<u>11-56</u>	<u>105-00</u>				
0700	<u>12-06</u>	<u>105-00</u>				
0800	<u>12-17</u>	<u>105-00</u>				
0900	"	"				
1000	"	"				
1100	"	"				
1200	<u>12-20</u>	"				
1300	"	"				
1400	"	"				
1500	"	"				
1600	<u>12-26</u>	<u>104-57</u>				
1700	<u>12-35</u>	<u>104-59</u>				
1800	<u>12-43</u>	<u>104-59</u>				
1900						
2000						
2100						
2200						
2300						
2400						

Date 12 March 1968 Ship Jordan (032) Cruise No. 76

Organization BCF Recorder J. Gordon

Sunrise: Time 0603 Position: Lat. 14-04, Long. 104-54

Sunset: Time 1818 Position: Lat. 15-33, Long. 105-00

Miles travelled from 0000 hours to sunrise = _____

Miles travelled from sunrise to sunset = 70

Miles travelled from sunset to 2400 hours = _____

TIME OF FIX TYPE OF FIX LATITUDE LONGITUDE

- 1.
- 2.
- 3.
- 4.
- 5.

Hourly Positions:

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

0100						
0200						
0300						
0400						
0500						
0600	<u>14-04</u>	<u>104-54</u>				
0700	<u>14-15</u>	<u>104-55.5</u>				
0800	<u>14-26</u>	<u>104-56.5</u>				
0900	<u>14-37</u>	<u>104-58</u>				
1000	<u>14-48</u>	<u>104-59.5</u>				
1100	"	"				
1200	<u>14-50</u>	<u>105-00</u>				
1300	<u>14-58</u>	<u>105-01</u>				
1400	<u>15-09</u>	<u>105-01</u>				
1500	<u>15-20</u>	<u>105-00.5</u>				
1600	<u>15-31</u>	<u>105-01</u>				
1700	"	"				
1800	"	"				
1900	<u>15-35</u>	"				
2000						
2100						
2200						
2300						
2400						

Date 3-13 Ship Druid Staur Jovday () Cruise No. 76

Organization _____ Recorder _____

Sunrise: Time 0603 Position: Lat. 16°43'S, Long. 105°W
 Sunset: Time 1816 Position: Lat. 17°55'S, Long. 105°W

Miles travelled from 0000 hours to sunrise = _____
 Miles travelled from sunrise to sunset = 71
 Miles travelled from sunset to 2400 hours = _____

TIME OF FIX TYPE OF FIX LATITUDE LONGITUDE

- 1.
- 2.
- 3.
- 4.
- 5.

Hourly Positions:

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

0100						
0200						
0300						
0400						
0500						
0600	16-43	105-01	120-18	gusts to 24kt	120	6
0700	16-53	105-01				
0800	17-04	105-01				
0900	17-15	105-01				
1000	"	"				
1100	"	"				
1200	"	"				
1300	"	"				
1400	17-29	105-01	120-20		120	8
1500	17-40	105-01		gusts to 30kt		
1600	17-51	105-01				
1700	"	"				
1800	17-52	105-01				
1900						
2000						
2100						
2200						
2300						
2400						

Date 3-14-68 Ship D.S.J. () Cruise No. 76

Organization _____ Recorder _____

Sunrise: Time 0602 Position: Lat. 19°-02'S, Long. 105°-03'W

Sunset: Time 1816 Position: Lat. 19-50, Long. 105-07

Miles travelled from 0000 hours to sunrise = _____

Miles travelled from sunrise to sunset = ~~740~~ 70

Miles travelled from sunset to 2400 hours = _____

TIME OF FIX TYPE OF FIX LATITUDE LONGITUDE

- 1.
- 2.
- 3.
- 4.
- 5.

Hourly Positions:

Time	Latitude <u>South</u>	Longitude <u>West</u>	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
0100						
0200						
0300						
0400						
0500						
0600	<u>19-02'</u>	<u>105-03'</u>	<u>110</u>	<u>15</u>	<u>120</u>	<u>8</u>
0700	<u>19-14</u>	<u>105-03</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>"</u>
0800	<u>19-23</u>	<u>105-04</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>"</u>
0900	<u>19-34</u>	<u>105-04</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>"</u>
1000	<u>19-39</u>	<u>105-04</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>"</u>
1100	<u>"</u>	<u>"</u>	<u>080</u>	<u>18</u>	<u>"</u>	<u>"</u>
1200	<u>"</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>"</u>
1300	<u>"</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>"</u>
1400	<u>19-39</u>	<u>105-05</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>"</u>
1500	<u>"</u>	<u>"</u>				
1600	<u>19-47</u>	<u>105-03</u>				
1700	<u>19-57</u>	<u>105-01</u>				
1800	<u>19-52</u>	<u>105-05</u>				
1900						
2000						
2100						
2200						
2300						
2400						

Date 3-15-68 Ship D.S.J () Cruise No. 76

Organization _____ Recorder _____

Sunrise: Time 0604 Position: Lat. 18°-23'S Long. 106°-00'

Sunset: Time 1823 Position: Lat. 16°-20'S Long. 107°-08'

Miles travelled from 0000 hours to sunrise = _____

Miles travelled from sunrise to sunset = 140

Miles travelled from sunset to 2400 hours = _____

TIME OF FIX TYPE OF FIX LATITUDE LONGITUDE

- 1.
- 2.
- 3.
- 4.
- 5.

Hourly Positions:

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

South West

0100						
0200						
0300						
0400						
0500						
0600	18-24	105-59	120	20	120	8
0700	18-14	106-05	↓		↓	↓
0800	18-03	106-11	↓		↓	↓
0900	17-53	106-17	↓		↓	↓
1000	17-43	106-24	↓		↓	↓
1100	17-32	106-29	↓	↓	↓	↓
1200	17-22	106-33	120	16	120	6
1300	17-11	106-39	↓		↓	↓
1400	17-01	106-46	↓	↓	↓	↓
1500	16-50	106-53	120	14	120	5
1600	16-39	106-58	↓		↓	↓
1700	16-29	107-04	↓	↓	↓	↓
1800	16-18	107-10	↓	↓	↓	↓
1900						
2000						
2100						
2200						
2300						
2400						

Date 3-16-68 Ship D.S.J. () Cruise No. 76

Organization _____ Recorder _____

Sunrise: Time 0616 Position: Lat. 14°-18'S, Long. 108°-20'W

Sunset: Time 1830 Position: Lat. 12°-14'S, Long. 109°-30'W

Miles travelled from 0000 hours to sunrise = _____

Miles travelled from sunrise to sunset = _____

Miles travelled from sunset to 2400 hours = _____

TIME OF FIX TYPE OF FIX LATITUDE LONGITUDE

- 1.
- 2.
- 3.
- 4.
- 5.

Hourly Positions:

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

0100						
0200						
0300						
0400						
0500						
0600	14-21	108-18	120	18	120	6
0700	14-11	108-24	↓	↓	↓	↓
0800	14-01	108-30	↓	↓	↓	↓
0900	13-51	108-36	↓	↓	↓	↓
1000	13-40	108-42	↓	↓	↓	↓
1100	13-30	108-48	↓	↓	↓	↓
1200	13-21	108-53	↓	↓	↓	↓
1300	13-10	109-00	↓	↓	↓	↓
1400	13-00	109-06	↓	↓	120	4
1500	12-49	109-12	↓	↓	↓	↓
1600	12-41	109-18	↓	↓	↓	↓
1700	12-30	109-23	↓	↓	↓	↓
1800	12-19	109-29	↓	↓	↓	↓
1900						
2000						
2100						
2200						
2300						
2400						

Date 3-17-68

Ship David Starr Jordan

Cruise No. 76

Organization _____

Recorder _____

Sunrise: Time 0627

Position: Lat. 10° 17' S, Long. 110° 48' W

Sunset: Time 1848

Position: Lat. 8° 30' S; Long. 112° 00' W

Miles travelled from 0000 hours to sunrise = _____

Miles travelled from sunrise to sunset = _____

Miles travelled from sunset to 2400 hours = _____

TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
-------------	-------------	----------	-----------

- 1.
- 2.
- 3.
- 4.
- 5.

Hourly Positions:

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

0100						
0200						
0300						
0400						
0500						
0600	10-21	110-47	120	16	120	6
0700	10-11	110-53	↓	↓	↓	↓
0800	10-01	110-59	↓	↓	↓	↓
0900	9-52	110-05	↓	↓	↓	↓
1000	9-42	111-13	↓	↓	↓	↓
1100	9-32	111-18	↓	↓	↓	↓
1200	9-20	111-25	↓	↓	↓	↓
1300	9-10	111-33	↓	↓	↓	↓
1400	9-00	111-40	120	12	120	5
1500	8-51	111-45	↓	↓	↓	↓
1600	8-41	111-52	↓	↓	↓	↓
1700	8-30	112-00	↓	↓	↓	↓
1800	"	"	↓	↓	↓	↓
1900						
2000						
2100						
2200						
2300						
2400						

Date 3-18-68 Ship David Starr Jordan () Cruise No. 76

Organization _____ Recorder _____

Sunrise: Time 0640 Position: Lat. 7°-13'S, Long. 111°-58' W
 Sunset: Time 1848 Position: Lat. 6°-18'S, Long. 111-58W

Miles travelled from 0000 hours to sunrise = _____
 Miles travelled from sunrise to sunset = _____
 Miles travelled from sunset to 2400 hours = _____

TIME OF FIX TYPE OF FIX LATITUDE LONGITUDE

- 1.
- 2.
- 3.
- 4.
- 5.

Hourly Positions:

<u>Time</u>	<u>Latitude</u> South	<u>Longitude</u> West	<u>Wind Dir.</u>	<u>Wind Sp.</u>	<u>Wave Dir.</u>	<u>Wave Hgt.</u>
0100			120	16	120	6
0200						
0300						
0400						
0500						
0600	7-20	111-57				
0700	7-10	111-57				
0800	"	"				
0900	"	"				
1000	"	"				
1100	"	"				
1200	"	"				
1300	7-04	111-58				
1400	6-53	111-57				
1500	6-40	111-57				
1600	6-29	111-58				
1700	"	"				
1800	6-28	111-58	↓	↓	↓	↓
1900						
2000						
2100						
2200						
2300						
2400						

David Starr

Date 3-19-68 Ship Jordan () Cruise No. 76

Organization _____ Recorder _____

Sunrise: Time 0640 Position: Lat. 4°-47'S, Long. 112°-04'W
 Sunset: Time 1847 Position: Lat. 03°-32'S, Long. 112°-00'W

Miles travelled from 0000 hours to sunrise = _____
 Miles travelled from sunrise to sunset = _____
 Miles travelled from sunset to 2400 hours = _____

TIME OF FIX TYPE OF FIX LATITUDE LONGITUDE

- 1.
- 2.
- 3.
- 4.
- 5.

Hourly Positions:

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

0100						
0200						
0300						
0400						
0500			150	12	150	3
0600	4-55	112-04	090	12	↓	↓
0700	4-43	112-05	↓	↓	↓	↓
0800	4-33	112-05	↓	↓	↓	↓
0900	4-26	112-06	↓	↓	↓	↓
1000	4-16	112-06	↓	↓	↓	↓
1100	4-10	112-06	080	08	confused	3
1200	"	"	↓	↓	↓	↓
1300	4-07	112-05	↓	↓	↓	↓
1400	4-00	112-04	↓	↓	↓	↓
1500	3-48	112-03	↓	↓	↓	↓
1600	3-43	112-02	↓	↓	↓	↓
1700	3-43	112-02	↓	↓	↓	↓
1800	3-40	112-02	↓	↓	↓	↓
1900	3-30	112-00				
2000						
2100						
2200						
2300						
2400						

Date 3-20-68 Ship David Starr Serdan (BCF) Cruise No. 76

Organization _____ Recorder _____

Sunrise: Time 0636 Position: Lat. 2° 26' S, Long. 112°-03' W

Sunset: Time 1848 Position: Lat. 1° 38' S, Long. 111°-59' W

Miles travelled from 0000 hours to sunrise = _____

Miles travelled from sunrise to sunset = _____

Miles travelled from sunset to 2400 hours = _____

TIME OF FIX TYPE OF FIX LATITUDE LONGITUDE

- 1.
- 2.
- 3.
- 4.
- 5.

Hourly Positions:

Time	Latitude South	Longitude West	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
0100						
0200						
0300						
0400						
0500						
0600	2-33	112-03	060	07	130	4
0700	2-22	112-03				
0800	2-17	112-02				
0900	"	"				
1000	"	"				
1100	"	"				
1200	"	"				
1300	2-15	112-02				
1400	2-06	112-02	↓	↓	↓	↓
1500	1-56	112-00	070	04	150	5
1600	1-49	112-00				
1700	"	"				
1800	1-44	111-59				
1900	1-34	111-59	↓	↓	↓	↓
2000						
2100						
2200						
2300						
2400						

Date 3-21-68 Ship David Starr Jordan (BCF) Cruise No. 76

Organization _____ Recorder _____

Sunrise: Time 0639 Position: Lat. 0°-16'S, Long. 111°-57'W

Sunset: Time 1846 Position: Lat. 1°-07'N, Long. 112°-01'W

Miles travelled from 0000 hours to sunrise = _____

Miles travelled from sunrise to sunset = _____

Miles travelled from sunset to 2400 hours = _____

TIME OF FIX TYPE OF FIX LATITUDE LONGITUDE

- 1.
- 2.
- 3.
- 4.
- 5.

Hourly Positions:

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

Lat. S	0100						
	0200						
	0300						
	0400						
	0500						
+	0600	0-24	111-57	060	10	150	5
h	0700	0-12	111-57	↓	↓	↓	↓
Lat N	0800	0-01	111-56			160	4
	0900	0-11	111-56	↓	↓		
	1000	0-25	111-55	↓	↓		
	1100	0-30	111-55	↓	↓		
	1200	"	"	↓	↓		
	1300	"	"	070	08		
	1400	0-30	111-54	↓	↓		
	1500	0-45	111-53	090	08	confused	4
	1600	0-54	111-52	↓	↓		
	1700	"	"	↓	↓		
	1800	0-59	111-52	↓	↓		
	1900	01-10	111-51	↓	↓		
	2000						
	2100						
	2200						
	2300						
	2400						

Date 3-22-68 Ship David Starr Jordan (BCF) Cruise No. 76

Organization _____ Recorder _____

Sunrise: Time 0638 Position: Lat. 2°-08'N, Long. 111°-58'W

Sunset: Time 1845 Position: Lat. 3°-25'N, Long. 112°-02'W

Miles travelled from 0000 hours to sunrise = _____

Miles travelled from sunrise to sunset = _____

Miles travelled from sunset to 2400 hours = _____

TIME OF FIX TYPE OF FIX LATITUDE LONGITUDE

- 1.
- 2.
- 3.
- 4.
- 5.

Hourly Positions:

Time	Latitude <i>North</i>	Longitude <i>West</i>	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
0100						
0200						
0300						
0400						
0500						
0600	2-02	111-57	110	08	confused	4
0700	2-13	111-58	↓	↓	↓	↓
0800	2-25	112-00	↓	↓	↓	↓
0900	2-32	112-02	060	08	060	4
1000	2-45	112-04	↓	↓	↓	↓
1100	"	"	075	10	070	4
1200	"	"	↓	↓	↓	↓
1300	2-53	112-03	↓	↓	↓	↓
1400	3-02	112-02	↓	↓	↓	↓
1500	3-13	112-01	↓	↓	↓	↓
1600	3-19	112-01	↓	↓	330	4
1700	"	"	↓	↓	↓	↓
1800	"	"	↓	↓	↓	↓
1900	3-27	112-01	↓	↓	↓	↓
2000						
2100						
2200						
2300						
2400						

Date 3-~~24~~²³-68

Ship David Starr Jordan (BCF)

Cruise No. 76

Organization _____

Recorder _____

Sunrise: Time 0638

Position: Lat. 4°-55'N, Long. 111°-57'W

Sunset: Time 1845

Position: Lat. 5°-37'N, Long. 111-55'W

Miles travelled from 0000 hours to sunrise = _____

Miles travelled from sunrise to sunset = _____

Miles travelled from sunset to 2400 hours = _____

TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
-------------	-------------	----------	-----------

- 1.
- 2.
- 3.
- 4.
- 5.

Hourly Positions:

Time	Latitude <i>North</i>	Longitude <i>West</i>	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
0100						
0200						
0300						
0400						
0500						
0600	<u>4-48</u>	<u>111-57</u>	<u>080</u>	<u>11</u>	<u>330</u>	<u>6</u>
0700	<u>5-00</u>	<u>111-57</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>
0800	<u>5-08</u>	<u>111-57</u>	<u>080</u>	<u>16</u>	<u>060</u>	<u>6</u>
0900	<u>"</u>	<u>"</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>
1000	<u>"</u>	<u>"</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>
1100	<u>"</u>	<u>"</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>
1200	<u>"</u>	<u>"</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>
1300	<u>"</u>	<u>"</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>
1400	<u>"</u>	<u>"</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>
1500	<u>5-14</u>	<u>111-58</u>	<u>060</u>	<u>14</u>	<u>060</u>	<u>6</u>
1600	<u>5-25</u>	<u>111-59</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>
1700						
1800						
1900						
2000						
2100						
2200						
2300						
2400						

Date 3-24-68 Ship David Starr Jordan (BCF) Cruise No. 76
 Organization _____ Recorder _____

Sunrise: Time 0637 Position: Lat. 6°58'N, Long. 111°57'W
 Sunset: Time 1845 Position: Lat. 8°28'N, Long. 112°02'W

Miles travelled from 0000 hours to sunrise = _____
 Miles travelled from sunrise to sunset = _____
 Miles travelled from sunset to 2400 hours = _____

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

Hourly Positions:

Time	Latitude <i>North</i>	Longitude <i>West</i>	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
0100						
0200						
0300						
0400						
0500						
0600	<u>6-5</u>	<u>111-57</u>	<u>060</u>	<u>14</u>	<u>060</u>	<u>6</u>
0700	<u>7-03</u>	<u>111-57</u>	↓	↓	↓	↓
0800	<u>7-14</u>	<u>111-58</u>	↓	↓	↓	↓
0900	<u>7-25</u>	<u>111-59</u>	↓	↓	↓	↓
1000	<u>7-35</u>	<u>112-03</u>	↓	↓	↓	↓
1100	<u>"</u>	<u>"</u>	↓	↓	↓	↓
1200	<u>"</u>	<u>"</u>	↓	↓	↓	↓
1300	<u>7-44</u>	<u>112-04</u>	<u>060</u>	<u>18</u>		
1400	<u>7-56</u>	<u>112-02</u>	↓	↓	↓	↓
1500	<u>8-07</u>	<u>112-00</u>	↓	↓	↓	↓
1600	<u>8-18</u>	<u>112-00</u>	↓	↓	↓	↓
1700	<u>8-16</u>	<u>112-02</u>	↓	↓	↓	↓
1800	<u>8-19</u>	<u>112-02</u>	↓	↓	↓	↓
1900						
2000						
2100						
2200						
2300						
2400						

Date 3-25-68 Ship David Starr Jordan (BCF) Cruise No. 76
 Organization _____ Recorder _____

Sunrise: Time 0629 Position: Lat. 9°-26'N, Long. 112°-03'W
 Sunset: Time 1839 Position: Lat. 10°-32'N, Long. 112°-05'W

Miles travelled from 0000 hours to sunrise = _____
 Miles travelled from sunrise to sunset = _____
 Miles travelled from sunset to 2400 hours = _____

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

Hourly Positions:

Time	Latitude <i>North</i>	Longitude <i>West</i>	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
0100						
0200						
0300						
0400						
0500						
0600	9-26	112-03	070	12	070	5
0700	"	"	↓	↓	↓	↓
0800	"	"	↓	↓	↓	↓
0900	9-37	112-04	↓	↓	↓	↓
1000	9-48	112-07	↓	↓	↓	↓
1100	"	"	↓	↓	↓	↓
1200	"	"	↓	↓	↓	↓
1300	"	"	↓	↓	↓	↓
1400	9-56	112-04	↓	↓	↓	↓
1500	10-08	112-04	070	14	070	6
1600	10-21	112-05	↓	↓	↓	↓
1700	"	"	↓	↓	↓	↓
1800	10-24	"	↓	↓	↓	↓
1900	10-36	"	↓	↓	↓	↓
2000						
2100						
2200						
2300						
2400						

Date 3-26-68 Ship David Starr Jordan (BCF) Cruise No. 76

Organization _____ Recorder _____

Sunrise: Time 0629 Position: Lat. 11°-46'N Long. 112°-01'W
 Sunset: Time 1850 Position: Lat. 12°-39'N Long. 111°-15'W

Miles travelled from 0000 hours to sunrise = _____
 Miles travelled from sunrise to sunset = _____
 Miles travelled from sunset to 2400 hours = _____

TIME OF FIX TYPE OF FIX LATITUDE LONGITUDE

- 1.
- 2.
- 3.
- 4.
- 5.

Hourly Positions:

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

0100						
0200						
0300						
0400						
0500						
0600	11-41	112-01	060	14	070	6
0700	11-51	111-59	↓	↓	↓	↓
0800	11-58	111-52	↓	↓	↓	↓
0900	12-07	111-44	060	10	060	5
1000	12-11	111-40	↓	↓	↓	↓
1100	"	"	↓	↓	↓	↓
1200	"	"	↓	↓	↓	↓
1300	"	"	↓	↓	↓	↓
1400	12-14	111-37	050	10	↓	↓
1500	12-23	111-29	↓	↓	↓	↓
1600	12-30	111-22	045	11	065	4
1700	"	"	↓	↓	↓	↓
1800	12-33	111-18	↓	↓	↓	↓
1900	12-41	111-13	↓	↓	↓	↓
2000						
2100						
2200						
2300						
2400						

Date 3-27-68

Ship David Starr Jordan (RCF)

Cruise No. 76

Organization _____

Recorder _____

Sunrise: Time 0622

Position: Lat. 13°-32'N, Long. 110°-32'

Sunset: Time 1831

Position: Lat. 14°-24'N, Long. 109°-46'W

Miles travelled from 0000 hours to sunrise = _____

Miles travelled from sunrise to sunset = _____

Miles travelled from sunset to 2400 hours = _____

	TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
--	-------------	-------------	----------	-----------

1.

2.

3.

4.

5.

Hourly Positions:

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

	North	West				
0100						
0200						
0300						
0400						
0500						
0600	13-28	110°-33'	050	10	050	4
0700	13-37	110°-26'	↓	↓	↓	↓
0800	13-47	110°-19'	↓	↓	↓	↓
0900	13-55	110-12	↓	↓	↓	↓
1000	14-05	110-04	↓	↓	↓	↓
1100	"	"	↓	↓	↓	↓
1200	"	"	↓	↓	↓	↓
1300	"	"	↓	↓	↓	↓
1400	"	"	↓	↓	↓	↓
1500	14-11	109-59	035	15	040	4
1600	14-18	109-53	↓	↓	↓	↓
1700	"	"	↓	↓	↓	↓
1800	14-22	109-48	↓	↓	↓	↓
1900	14-27	109-43	↓	↓	↓	↓
2000						
2100						
2200						
2300						
2400						

Date 3-28-68 Ship David Starr Gordon (BCF) Cruise No. 74

Organization _____ Recorder _____

Sunrise: Time 0613 Position: Lat. 15-20, Long. 108-55

Sunset: Time 1824 Position: Lat. 16°-23'N, Long. 107°-42'W

Miles travelled from 0000 hours to sunrise = _____

Miles travelled from sunrise to sunset = _____

Miles travelled from sunset to 2400 hours = _____

TIME OF FIX TYPE OF FIX LATITUDE LONGITUDE

- 1.
- 2.
- 3.
- 4.
- 5.

Hourly Positions:

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

0100						
0200						
0300						
0400						
0500						
0600	15-18	108-57	030	14	030	03
0700	15-26	108-49				
0800	15-35	108-41				
0900	15-40	108-37				
1000	15-51	108-26	030	10		
1100	"	"				
1200	15-53	108-25				
1300	15-56	108-18	↓	↓	↓	↓
1400	16-03	108-09	035	08	cc740500el	2
1500	16-10	107-59				
1600	16-17	107-49				
1700	"	"				
1800	16-20	107-46	↓	↓	↓	↓
1900	16-27	107-37	↓	↓	↓	↓
2000						
2100						
2200						
2300						
2400						

Date 3-29-68 Ship David Starr Jordan (B&F) Cruise No. 76

Organization _____ Recorder _____

Sunrise: Time 0603 Position: Lat. 17°-21'N, Long. 106°-31'W
 Sunset: Time 1815 Position: Lat. 18°-11'N, Long. 105°-32'W

Miles travelled from 0000 hours to sunrise = _____
 Miles travelled from sunrise to sunset = _____
 Miles travelled from sunset to 2400 hours = _____

TIME OF FIX TYPE OF FIX LATITUDE LONGITUDE

- 1.
- 2.
- 3.
- 4.
- 5.

Hourly Positions:

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

0100						
0200						
0300						
0400						
0500						
0600	17-20	106-31	360	10	confused	3
0700	17-27	106-25	↓	↓	↓	↓
0800	17-34	106-17	↓	↓	↓	↓
0900	17-42	106-08	↓	↓	↓	↓
1000	17-48	105-58	↓	↓	↓	↓
1100	"	"	↓	↓	↓	↓
1200	"	"	350	05	↓	↓
1300	"	"	↓	↓	↓	↓
1400	17-53	105-53	↓	↓	↓	↓
1500	18-00	105-45	310	10	↓	↓
1600	18-07	105-39	↓	↓	↓	↓
1700	"	"	↓	↓	↓	↓
1800	18-09	105-34	↓	↓	↓	↓
1900	18-16	105-25	↓	↓	↓	↓
2000						
2100						
2200						
2300						
2400						

arrive Manzanillo Harbour 0330 30 March 1968

Date 3-31-68 Ship David Starr Jordan (BCF) Cruise No. 76

Organization _____ Recorder _____

Sunrise: Time X Depart Manzanillo Harbor 0900 Position: Lat. _____, Long. _____

Sunset: Time 1819 Position: Lat. 19-53, Long. 106-12

Miles travelled from 0000 hours to sunrise = _____

Miles travelled from sunrise to sunset = _____

Miles travelled from sunset to 2400 hours = _____

TIME OF FIX TYPE OF FIX LATITUDE LONGITUDE

- 1.
- 2.
- 3.
- 4.
- 5.

Hourly Positions:

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

0100						
0200						
0300						
0400						
0500						
0600	Manzanillo Harbor					
0700	"	"				
0800	"	"				
0900	"	"				
1000	19-05	104-37	Light	Var	calm	
1100	19-09	104-47	↓	↓	↓	
1200	19-14	104-59	↓	↓	↓	
1300	19-19	105-10	280	04	280	1
1400	19-25	105-21	↓	↓	↓	↓
1500	19-32	105-33	↓	↓	↓	↓
1600	19-38	105-44	280	06	280	2
1700	19-44	105-56	↓	↓	↓	↓
1800	19-51	106-08	↓	↓	↓	↓
1900	19-57	106-19	↓	↓	↓	↓
2000						
2100						
2200						
2300						
2400						

Date 4-1-68 Ship David Starr Jordan (BCF) Cruise No. 76

Organization _____ Recorder _____

Sunrise: Time 0607 Position: Lat. 20-52, Long. 108-08

Sunset: Time 1839 Position: Lat. 22-04, Long. 110-13

Miles travelled from 0000 hours to sunrise = _____

Miles travelled from sunrise to sunset = _____

Miles travelled from sunset to 2400 hours = _____

TIME OF FIX TYPE OF FIX LATITUDE LONGITUDE

- 1.
- 2.
- 3.
- 4.
- 5.

Hourly Positions:

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

0100						
0200						
0300						
0400						
0500	20-51					
0600	20-51	108-07	320	04	320	3
0700	20-57	108-18				
0800	21-03	108-30				
0900	21-08	108-40				
1000	21-14	108-51				
1100	21-19	109-02				
1200	21-24	109-13	↓	*	↓	↓
1300	21-29	109-23	300	12	300	4
1400	21-35	109-32				
1500	21-42	109-42				
1600	21-49	109-51				
1700	21-55	110-00				
1800	22-02	110-09				
1900	22-06	110-15	↓	↓	↓	↓
2000						
2100						
2200						
2300						
2400						

Date 4-2-68 Ship David Starr Jordan (BCF) Cruise No. 76

Organization _____ Recorder _____

Sunrise: Time 0613 Position: Lat. 23-08, Long. 110-23

Sunset: Time 1844 Position: Lat. 24-07, Long. 111-26

Miles travelled from 0000 hours to sunrise = _____

Miles travelled from sunrise to sunset = _____

Miles travelled from sunset to 2400 hours = _____

TIME OF FIX TYPE OF FIX LATITUDE LONGITUDE

- 1.
- 2.
- 3.
- 4.
- 5.

Hourly Positions:

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

0100						
0200						
0300						
0400						
0500						
0600	23-08	110-25	285	8	285	3
0700	} Search area off Pescadore Pt.		↓	↓	↓	↓
0800			285	10	285	4
0900			↓	↓	↓	↓
1000		Gen. Pos. 23-15 110-17				
1100	23-19	110-17	↓	↓	↓	↓
1200	23-23	110-26	↓	↓	↓	↓
1300	23-28	110-32	285	14	285	5
1400	23-35	110-42	↓	↓	↓	↓
1500	23-42	110-51	↓	↓	↓	↓
1600	23-49	111-02	↓	↓	↓	↓
1700	23-55	111-11	↓	↓	↓	↓
1800	24-02	111-20	↓	↓	↓	↓
1900	24-09	111-30	↓	↓	↓	↓
2000						
2100						
2200						
2300						
2400						

3 April 1968

0622 SR	25-28	112-58
1855 SS	26-58	114-17

	Lat	Long
1200	26-04	113-35
1300	26-12	113-42
1400	26-20	113-48
1500	26-28	113-55

DO NOT FILL IN SHADED AREAS AT SEA)

RSC

SHEET 4 OF 9 SHEETS

03

BT AND ENVIRONMENT

	1	2
0	1	0
	0	2

BT INSTRUMENT NO.

Expendable BT's

TIME ZONE:

No #'s

47

VESSEL Jordan

3	4	5
0	3	2

CRUISE NO.

6	7	8	9
0	0	0	4

LOCAL MONTH

10	11
0	3

LOCAL YEAR

14	15
6	8

LOCAL DAY	LOCAL HOUR	OCTANT	LATITUDE	LONGITUDE	TDS BT SLIDE NO.	THERMO-CLINE DEPTH (M)	SURFACE TEMP. (°C)	SURFACE SALINITY BOTTLE NO.	10 METER TEMP.	WIND		BAROM.	WEATHER	SEA	VISIB.	SUR. OX.		SUR. PHOS.		M	CL.	AIR TEMP.		REL. HUM.		WAVE DIR.		
										DIRECT	SPEED					54	55	56	57			58	59	60	61	62	63	64
14	22	50	6	19° 13'			24.5	36.2		09	12	20	0	1	5	8							1	2	4	6	23	10
15	00	01	6	19 54			24.5			09	15	17	0	2	4	7							4	2	5	4	23	09
15	06	00	6	19 12			24.5			09	16	19	0	2	4	7							2	2	3	5	21	09
15	12	00	6	18 36			24.5			09	17	17	0	2	4	7							2	2	3	8	21	09
15	18	00	6	17 30			24.9			11	16	17	0	2	4	7							1	2	4	1	23	11
16	00	01	6	16 30			25.0			11	14	15	0	2	4	7							4	2	4	6	22	11
16	06	00	6	15 30			25.0			11	17	17	0	2	4	7							1	2	4	0	22	11
16	12	00	6	14 30			25.1			11	14	15	0	1	4	8							1	2	4	2	22	11
16	18	00	6	13 36			25.5			11	15	16	0	2	4	9							1	2	5	4	23	11
17	00	01	6	12 30			25.6			11	13	12	0	2	4	9							3	2	5	1	24	11
17	06	00	6	11 30			25.3			12	16	14	0	2	3	9							1	2	5	0	22	12
17	12	00	6	10 42			27.6			12	12	12	0	3	3	9							3	2	4	8	23	12
17	18	22	6	08 31			25.9			12	15	14	0	2	3	9							1	2	6	4	24	13
17	21	39	6	08 12			25.8			12	12	12	0	2	4	9							1	2	6	7	24	12
18	04	46	6	07 24			25.6			12	12	12	0	2	4	9							1	2	5	4	24	12
18	07	43	6	07 09			25.7			10	08	12	0	2	4	9							1	2	5	8	24	12
18	08	46	6	07 09			25.0			10	08	13	0	2	4	9							1	2	5	8	24	12
18	12	00	6	07 18			25.5			11	10	11	0	1	3	9							1	2	5	0	24	11
18	16	55	6	06 29			25.9			14	03	11	0	1	4	9							1	2	7	1	24	14
18	22	53	6	05 42			25.8			16	10	13	0	2	3	9							4	2	6	3	23	16
19	04	54	6	04 58			25.7			13	10	11	0	2	3	9							1	2	5	5	23	13

RSC

(DO NOT FILL IN SHADED AREAS AT SEA)

SHEET 5 OF 9 SHEETS

03

BT AND ENVIRONMENT

0	1	0	2
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BT INSTRUMENT NO.

Expendable Bts

TIME ZONE:

No #s

+7

VESSEL Jordan

0	3	2
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CRUISE NO.

0	0	0	4
---	---	---	---

LOCAL MONTH

0	3
---	---

LOCAL YEAR

6	8
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LOCAL DAY	LOCAL HOUR		OCTANT	LATITUDE		LONGITUDE		BT SLIDE NO.	THERMO-CLINE DEPTH (M)	SURFACE TEMP. (°C)	SURFACE SALINITY BOTTLE NO.	10 METER TEMP.	WIND		BAROM.	WEATHER	SEA	VISIB.	SUR. OX.		SUR. PHOS.		M	CL.	AIR TEMP.		REL. HUM.		WAVE DIR.						
	12	13		14	15	16	17						18	19					20	21	22	23			24	25	26	27	28	29	30	31	54	55	56
19	11	14	6	04	10	12	07	130		257	FR26		15	12	130	3	29								3	27	0	24	16						
19	16	52	6	03	43	12	02	132		261	BS		10	05	100	2	47								3	28	1	24	14						
19	23	34	6	02	56	12	02	136		253	BS		07	08	130	2	08							3	25	4	25	07							
20	04	50	6	02	36	12	02	138		251	FR		06	03	100	2	08							1	25	3	24	06							
20	08	19	6	02	17	12	02	140		249	BS		05	04	120	2	38							6	25	3	24	12							
20	09	27	6	02	17	12	02	140		250	BS		05	04	130	2	48							1	25	3	24	12							
20	16	51	6	01	49	12	00	142		257	FR		08	04	090	2	48							3	27	2	24	12							
20	23	39	6	00	53	11	58	146		244	BS		07	07	120	2	28							2	25	0	24	07							
21	04	55	6	00	28	11	58	148		237	BS		07	07	090	1	27							0	25	2	23	07							
21	11	19	1	00	30	11	54	152		233	FR		09	04	120	3	38							1	25	9	23	14							
21	16	56	1	00	54	11	52	154		242	FR		10	03	090	3	39							1	26	7	21	12							
21	23	40	1	01	46	11	58	158		259	BS		16	03	110	3	19							2	25	4	24	16							
22	05	19	1	02	01	11	57	160		263	FR		11	09	090	3	19							0	26	0	22	11							
22	10	52	1	02	44	12	04	164		271	FR		10	08	110	3	39							6	27	4	25	10							
22	17	21	1	03	19	12	02	166		273	FR		07	08	070	3	39							6	28	2	24	05							
22	23	31	1	04	07	11	59	170		270	BS		08	10	120	3	49							1	27	0	23	08							
23	04	51	1	04	43	11	57	172		270	FR		07	12	090	3	49							1	27	0	24	07							
23	08	18	1	05	06	11	58	173		272	FR		05	10	120	3	49							7	27	9	24	05							
23	17	00	1	05	27	11	57	174		274	BS		07	18	090	3	57							2	29	0	24	10							
23	22	54	1	06	12	11	58	176		271	FR		08	06	078	3	59							1	27	1	24	08							
24	04	48	1	06	48	11	57	178		269	FR		07	11	100	3	49							1	27	1	24	07							

(DO NOT FILL IN SHADED AREAS AT SEA)

SHEET 6 OF 9 SHEETS

BT AND ENVIRONMENT

		1	2
0	1	0	2

BT INSTRUMENT NO.

Expendable Bts

TIME ZONE:

No No's.

+7

VESSEL Jordan

3	4	5
0	3	2

CRUISE NO.

6	7	8	9
0	0	0	4

LOCAL MONTH

10	11
0	3

LOCAL YEAR

14	15
6	8

LOCAL DAY	LOCAL HOUR	OCTANT	LATITUDE	LONGITUDE	BT SLIDE NO.	THERMO-CLINE DEPTH (M)	SURFACE TEMP. (°C)	SURFACE SALINITY BOTTLE NO.	10 METER TEMP.	WIND		BAROM.	WEATHER	SEA	VISIB.	SUR. OX.			SUR. PHOS.			M		CL.		AIR TEMP.		REL. HUM.		WAVE DIR.	
										DIRECT.	SPEED					54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69
24	10	55	10735	1204180			268	F59		07	12	120	34	9											7	28	0	24	08		
24	16	49	10816	1202182			269	J55		07	08	080	34	7											2	28	0	24	09		
24	23	41	10908	1203184			270	F55		08	08	120	34	7											1	27	3	24	08		
25	04	21	10926	1203185			270	F57		05	11	090	34	6											1	27	1	23	05		
25	11	00	10948	1207186			270	W78		07	08	126	54	3											9	25	4	22	09		
25	16	54	11019	1205188			269	J55		10	06	090	35	6											7	28	1	24	12		
25	22	55	11107	1203190			268	F59		07	06	130	33	6											7	27	2	24	07		
26	05	02	11139	1202192			268	F44		07	14	100	33	6											-	27	1	23	07		
26	10	16	11211	1140194			269	B78		05	10	120	33	6											7	28	1	23	06		
26	16	50	11230	1122196			270	W78		08	04	090	33	6											7	27	9	23	07		
26	22	05	11308	1051198			270	F72		06	10	120	33	7											8	26	7	23	06		
27	04	51	11326	1036200			270	D28		05	08	100	33	7											-	26	5	23	05		
27	10	34	11406	1004202			269	F72		02	12	130	32	7											7	27	4	22	02		
27	16	54	11418	0952203			268	W78		04	12	110	33	7											7	27	7	23	03		
27	23	43	11453	0920205			271	J55		05	10	140	32	7											2	26	2	22	05		
28	05	00	11516	0858207			266	F59		03	10	120	32	7											1	25	1	22	03		
28	10	57	11551	0826209			261	D28		06	08	150	33	7											6	26	7	20	04		
28	16	50	11617	0749211			255	F72		06	02	120	32	7											3	25	0	20	05		
28	22	53	11648	0711213			245	B78		01	05	150	32	7											1	24	0	20	01		
29	04	47	11716	0636215			252	F59		35	08	130	32	7											1	23	9	20	35		
29	11	20	11748	0557217			252	F59		34	07	150	33	7											6	25	0	20	35		

(DO NOT FILL IN SHADED AREAS AT SEA)

Filling for non BT Points

RSC

SHEET 8 OF 9 SHEETS

BT AND ENVIRONMENT

0	1	0	2
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BT INSTRUMENT NO.

Expendable BTS

TIME ZONE:

NO #'s

+7

VESSEL

Jordan

0	3	2
---	---	---

CRUISE NO.

0	0	0	4
---	---	---	---

LOCAL MONTH

0	3
---	---

LOCAL YEAR

6	8
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LOCAL DAY	LOCAL HOUR	OCTANT	LATITUDE		LONGITUDE		BT SLIDE NO.	THERMO-CLINE DEPTH (M)	SURFACE TEMP. (°C)	SURFACE SALINITY BOTTLE NO.	10 METER TEMP.	WIND		BAROM.	WEATHER	SEA	VISIB.	SUR. OX.		SUR. PHOS.		M CL.		AIR TEMP.		REL. HUM.		WAVE DIR.	
												DIRECT	SPEED					54	55	56	57	58	59	60	61	62	63	64	65
01	1200	1	09	06	05	00			267			05	11	130	3	37								0	26	2	24	05	
02	1200	1	06	42	05	00			264			09	17	110	2	39								1	26	2	25	09	
02	1800	1	06	00	05	00			266			12	08	130	2	49								1	28	0	26	12	
03	1200	1	04	48	05	00			260			16	13	116	4	03								9	24	0	24	16	
03	1800	1	04	12	05	00			264			18	10	132	1	47								8	26	0	24	18	
04	1200	1	02	48	05	00			265			18	06	101	6	26								8	24	8	24	18	
04	1800	1	02	18	05	00			265			07	10	130	2	47								4	26	8	23	07	
05	1200	1	01	12	05	00			271			14	08	090	0	07								0	24	8	23	14	
05	1800	1	00	36	05	00			255			23	04	130	2	47								1	27	0	23	23	
06	1200	6	00	48	05	00			262			00	00	100	0	09								4	25	0	24	00	
06	1800	6	01	12	05	00			254			18	02	120	3	09								1	26	2	23	18	
07	1200	6	02	54	05	06			254			12	10	110	2	09								3	25	0	24	12	
08	1200	6	05	00	05	00			256			15	10	120	2	37								4	25	0	24	15	
08	1800	6	05	30	05	00			256			14	14	150	3	37								1	26	0	22	14	
09	0600	6	06	12	05	00			253			12	12	150	2	37								1	25	0	21	12	
09	1200	6	07	30	05	00			253			12	16	130	2	37								1	24	5	23	10	
09	1800	6	08	06	05	00			253			08	08	160	2	38								1	26	0	22	08	
10	1200	6	09	42	05	00			251			12	14	140	2	39								1	24	2	23	12	
10	1800	6	10	12	05	06			251			12	15	160	2	39								1	25	5	21	12	
11	1200	6	11	48	05	00			260			12	18	131	8	37								4	24	5	23	12	
11	1800	6	12	18	05	00			248			11	20	170	1	37								3	25	0	24	11	