

SI-MNH-955a
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 12 April Total Minutes: 346 Total Miles 55

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>51</u>	<u>389</u>	<u>7.61</u>	<u>7.05</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
<u>17</u>	<u>12</u>	<u>0</u>	<u>2</u>	<u>31</u>	<u>18</u>	<u>0</u>	<u>2</u>	<u>1.82</u>	<u>1.5</u>	<u>0</u>	<u>1</u>	<u>.56</u>	<u>.33</u>	<u>0</u>	<u>.04</u>

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>28</u>	<u>310</u>	<u>11.07</u>	<u>5.64</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>1</u>	<u>1</u>	<u>1</u>	<u>.02</u>

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B
<u>4</u>	<u>-</u>	<u>4</u>	<u>-</u>	<u>43</u>	<u>-</u>	<u>43</u>	<u>-</u>	<u>10.75</u>	<u>10.75</u>	<u>.78</u>	<u>.78</u>				

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
<u>6</u>	<u>319</u>	<u>.11</u>	<u>1</u>	<u>240</u>	<u>.02</u>

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SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 17 Apr 64 Total Minutes: 754 Total Miles 125

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
32	189	5.28	1.35

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
20	7	5		46	18	6		2.3	2.57	1.2		.37	.14		.05

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
10	121	12.1	.97

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B
1		1		1		1		1		1		.01		.01	

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
1	1	1	.01

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
5	131	.04	4	126	.03

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SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 14 Apr 64 Total Minutes: 744 Total Miles 129

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>16</u>	<u>55</u>	<u>3.44</u>	<u>.43</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
<u>12</u>			<u>3</u>	<u>13</u>			<u>3</u>	<u>1.08</u>			<u>1</u>	<u>.10</u>			<u>.03</u>

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>1</u>	<u>40</u>	<u>40</u>	<u>.31</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B
<u>1</u>	<u>1</u>			<u>1</u>	<u>1</u>			<u>1</u>	<u>1</u>			<u>.01</u>	<u>.01</u>		

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
<u>1</u>	<u>40</u>	<u>.01</u>	<u>1</u>	<u>40</u>	<u>.01</u>

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DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 15 Apr 64 Total Minutes: 732 Total Miles 119

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>74</u>	<u>85</u>	<u>1.15</u>	<u>.71</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
<u>18</u>	<u>2</u>	<u>8</u>	<u>9</u>	<u>26</u>	<u>2</u>	<u>8</u>	<u>9</u>	<u>1.12</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>.57</u>	<u>.02</u>	<u>.07</u>	<u>.08</u>

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
<u>1</u>	<u>0</u>	<u>0</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>.02</u>	<u>-</u>	<u>-</u>

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>2</u>	<u>4</u>	<u>2</u>	<u>.03</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>0</u>	<u>0</u>	<u>-</u>	<u>-</u>

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B
<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>

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SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 16 Apr 64 Total Minutes: 736 Total Miles 109

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>14</u>	<u>78</u>	<u>5.57</u>	<u>0.72</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
<u>14</u>	<u>1</u>	<u>4</u>	<u>2</u>	<u>28</u>	<u>6</u>	<u>4</u>	<u>2</u>	<u>2.00</u>	<u>6</u>	<u>1</u>	<u>1</u>	<u>0.26</u>	<u>0.6</u>	<u>0.24</u>	<u>0.03</u>

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>1</u>	<u>50</u>	<u>50</u>	<u>0.46</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
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VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
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VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
<u>1</u>	<u>62</u>	<u>0.01</u>	<u>1</u>	<u>62</u>	<u>0.01</u>

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SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 17 Apr 64 Total Minutes: 753 Total Miles 129

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>15</u>	<u>20</u>	<u>1.33</u>	<u>.18</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
<u>14</u>	<u>1</u>	<u>2</u>	<u>0</u>	<u>16</u>	<u>2</u>	<u>2</u>	<u>0</u>	<u>1.13</u>	<u>2</u>	<u>1</u>	<u>0</u>	<u>.14</u>	<u>.02</u>	<u>.02</u>	<u>0</u>

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.

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SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 18 Apr 64 Total Minutes: 185 Total Miles 24

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>11</u>	<u>437</u>	<u>39.73</u>	<u>18.21</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
<u>6</u>				<u>11</u>				<u>1.83</u>				<u>.46</u>			

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>5</u>	<u>426</u>	<u>85.2</u>	<u>17.75</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
<u>2</u>	<u>420</u>	<u>.08</u>	<u>2</u>	<u>420</u>	<u>.08</u>

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SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 21 April 64 Total Minutes: 768 Total Miles 138

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>16</u>	<u>19</u>	<u>1.19</u>	<u>.14</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
<u>14</u>	<u>1</u>	<u>2</u>		<u>17</u>	<u>1</u>	<u>2</u>		<u>1.21</u>	<u>1</u>	<u>1</u>		<u>.12</u>	<u>.01</u>	<u>.01</u>	

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
<u>1</u>	<u>1</u>		<u>1</u>	<u>1</u>		<u>1</u>	<u>1</u>		<u>.01</u>	<u>.01</u>	

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>1</u>	<u>1</u>	<u>1</u>	<u>.01</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.

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SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 22 Apr 64 Total Minutes: 787 Total Miles 137

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>16</u>	<u>23</u>	<u>1.44</u>	<u>.17</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
<u>12</u>		<u>1</u>		<u>14</u>		<u>1</u>		<u>1.17</u>		<u>1</u>		<u>.10</u>		<u>.01</u>	

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
<u>1</u>	<u>1</u>		<u>1</u>	<u>1</u>		<u>1</u>	<u>1</u>		<u>.01</u>	<u>.01</u>	

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>2</u>	<u>7</u>	<u>3.5</u>	<u>.05</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
<u>1</u>	<u>6</u>	<u>.01</u>			

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SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 23/2/64 Total Minutes: 253 Total Miles 105

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>21</u>	<u>25</u>	<u>1.19</u>	<u>.24</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
<u>15</u>	<u>1</u>	<u>1</u>		<u>17</u>	<u>1</u>	<u>1</u>		<u>1.13</u>	<u>1</u>	<u>1</u>		<u>.16</u>	<u>.01</u>	<u>.01</u>	

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
<u>2</u>	<u>2</u>		<u>2</u>	<u>2</u>		<u>1</u>	<u>1</u>		<u>.02</u>	<u>.02</u>	

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>1</u>	<u>1</u>	<u>1</u>	<u>.01</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.

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SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 24 April 64 Total Minutes: 753 Total Miles 138

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>36</u>	<u>51</u>	<u>1.41</u>	<u>.37</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
32	6	2	2	44	8	3	2	1.38	1.33	1	1	.32	.06	.01	.01

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
1		1	1		1	1		1	.01		.01

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>2</u>	<u>2</u>	<u>1</u>	<u>.01</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.

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SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 25 April Total Minutes: 751 Total Miles 57

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>45</u>	<u>70</u>	<u>1.56</u>	<u>1.23</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
38	10	3		49	12	3		1.29	1.2	1		.86	.21	.05	

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
2	1	1	2	1	1	1	1	1	.04	.02	.02

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>4</u>	<u>16</u>	<u>4</u>	<u>.28</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
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VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B
1	1			1	1			1	1			.02	.02		

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
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VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
<u>1</u>	<u>14</u>	<u>.02</u>			

SI-MNH-955a
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 25 Nov 64 Total Minutes: 739 Total Miles 122

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>67</u>	<u>339</u>	<u>5.06</u>	<u>2.78</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
65	19	7	2	202	132	11	3	3.11	6.95	1.57	1.5	1.66	1.08	.09	.02

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>2</u>	<u>132</u>	<u>66</u>	<u>1.08</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
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VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B
1	1			2	2			2	2			.02	.02		

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
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VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
<u>3</u>	<u>242</u>	<u>.02</u>	<u>2</u>	<u>237</u>	<u>.02</u>

SI-MNH-955a
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 27 Apr 64 Total Minutes: 753 Total Miles 115

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
17	295	17.35	2.57

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
13	3	1		21	3	1		1.62	1	1		1.43	0.3	0.1	

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
1	1		1	1		1	1		0.03	0.03	

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
5	271	54.2	2.35

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
-	-	-	-

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
9	277	31	3	270	0.3

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3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 28 Apr 64 Total Minutes: 761 Total Miles 125

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
33	53	1.61	.42

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
29	2			42	2			1.45	1			.23	.01		

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
3	9	3	.02

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
1	6	.01			

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3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 29 Apr 64 Total Minutes: 770 Total Miles 134

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>27</u>	<u>36</u>	<u>1.33</u>	<u>.27</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
<u>23</u>	<u>5</u>			<u>30</u>	<u>5</u>			<u>1.30</u>	<u>1</u>			<u>.22</u>			

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>2</u>	<u>3</u>	<u>1.5</u>	<u>.02</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>2</u>	<u>3</u>	<u>1.5</u>	<u>.02</u>

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
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VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
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3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 30 Apr 64 Total Minutes: 781 Total Miles 125

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>21</u>	<u>25</u>	<u>1.19</u>	<u>.20</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
<u>20</u>				<u>24</u>				<u>1.20</u>				<u>.19</u>			

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.

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3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 1 May 64 Total Minutes: 795 Total Miles 144

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>36</u>	<u>49</u>	<u>1.36</u>	<u>.34</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
<u>33</u>	<u>2</u>	<u>-</u>	<u>-</u>	<u>46</u>	<u>2</u>	<u>-</u>	<u>-</u>	<u>1.39</u>	<u>1</u>	<u>-</u>	<u>-</u>	<u>.32</u>	<u>.01</u>	<u></u>	<u></u>

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>1</u>	<u>1</u>	<u>1</u>	<u>.01</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>2</u>	<u>2</u>	<u>1</u>	<u>.01</u>

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.

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3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 2 May 64 Total Minutes: 794 Total Miles 155

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
29	42	1.45	.27

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
19	1	0	0	29	1	0	0	1.53	1	-	-	.19	.01	-	-

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
1	1	-	1	1	-	1	1	-	.01	.01	

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
5	8	1.6	.05

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
2	2	1	.01

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
0	0				

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3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 3 May 64

Total Minutes: 788

Total Miles 91

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>79</u>	<u>470</u>	<u>5.95</u>	<u>5.16</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
<u>60</u>	<u>1</u>	<u>2</u>		<u>74</u>	<u>1</u>	<u>2</u>		<u>1.23</u>	<u>1</u>	<u>1</u>		<u>.81</u>	<u>.01</u>	<u>.02</u>	

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
<u>2</u>		<u>2</u>	<u>2</u>		<u>2</u>	<u>1</u>		<u>1</u>	<u>.02</u>		<u>.02</u>

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>21</u>	<u>392</u>	<u>18.67</u>	<u>4.31</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>1</u>	<u>1</u>	<u>1</u>	<u>.01</u>

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>1</u>	<u>1</u>	<u>1</u>	<u>.01</u>

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
<u>3</u>	<u>362</u>	<u>.03</u>	<u>3</u>	<u>362</u>	<u>.03</u>

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3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 4 May 1964 Total Minutes: 325 Total Miles 62

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
	<u>624</u>		<u>10.06</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
				<u>149</u>	<u>137</u>	<u>-</u>	<u>2</u>					<u>2.40</u>	<u>2.21</u>	<u>.03</u>	

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
	<u>441</u>		<u>7.11</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
	<u>1</u>		<u>.02</u>

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B
				<u>31</u>	<u>27</u>	<u>4</u>						<u>.50</u>	<u>.44</u>	<u>.06</u>	

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
<u>5</u>	<u>308</u>	<u>.08</u>	<u>2</u>	<u>182</u>	<u>.03</u>
	<u>309</u>				

SI-MNH-955b
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS

AT SEA SURVEY CHART B

DATE 12 April 64

Time at sunrise = ¹³⁰⁰ Position at sunrise = 21° 17' N 157° 53' W
Time at sunset = ¹⁸⁴² Position at sunset = 21° 30' N 158° 05' W
Miles traveled from 0000 hours to sunrise = —
Miles traveled from sunrise to sunset = 55
Miles traveled from sunset to 2400 hours = 48

TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.			
2.			
3.			
4.			
5.			
6.			

DATE 13 April 64

Time at sunrise = ⁰⁶¹² Position at sunrise = 18° 45' N 156° 55' W
Time at sunset = ¹⁸⁴² Position at sunset = 18° 29' N 157° 21' W
Miles traveled from 0000 hours to sunrise = 48
Miles traveled from sunrise to sunset = 125
Miles traveled from sunset to 2400 hours = 61

TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.			
2.			
3.			
4.			
5.			
6.			

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SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART B

DATE 14 Apr 64

Time at sunrise = ⁰⁶¹⁵ Position at sunrise = $14^{\circ} 58' N$ $157^{\circ} 31' W$
Time at sunset = ¹⁷⁰⁰ Position at sunset = $15^{\circ} 05' N$ $157^{\circ} 21' W$
Miles traveled from 0000 hours to sunrise = 82
Miles traveled from sunrise to sunset = 179
Miles traveled from sunset to 2400 hours = 58

	TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.				
2.				
3.				
4.				
5.				
6.				

DATE 15 Apr 64

Time at sunrise = ⁰⁶¹⁰ Position at sunrise = $11^{\circ} 27' N$ $156^{\circ} 28' W$
Time at sunset = ¹⁸²⁸ Position at sunset = $11^{\circ} 20' N$ $158^{\circ} 28' W$
Miles traveled from 0000 hours to sunrise = 58
Miles traveled from sunrise to sunset = 119
Miles traveled from sunset to 2400 hours = 41

	TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.				
2.				
3.				
4.				
5.				
6.				

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3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS

AT SEA SURVEY CHART B

DATE

16 Apr 64

Time at sunrise = ⁰⁶⁰³ Position at sunrise = $17^{\circ} 49' N$ $154^{\circ} 00' W$

Time at sunset = ¹⁸³⁷ Position at sunset = $18^{\circ} 58' N$ $154^{\circ} 07' W$

Miles traveled from 0000 hours to sunrise = 68

Miles traveled from sunrise to sunset = 107

Miles traveled from sunset to 2400 hours = 58

TIME OF FIX TYPE OF FIX LONGITUDE LATITUDE

1.

2.

3.

4.

5.

6.

DATE

17 Apr 64

Time at sunrise = ⁰⁶⁰⁰ Position at sunrise = $16^{\circ} 25' N$ $154^{\circ} 00' W$

Time at sunset = ¹⁸³² Position at sunset = $18^{\circ} 44' N$ $154^{\circ} 00' W$

Miles traveled from 0000 hours to sunrise = 59

Miles traveled from sunrise to sunset = 129

Miles traveled from sunset to 2400 hours = 45

TIME OF FIX TYPE OF FIX LONGITUDE LATITUDE

1.

2.

3.

4.

5.

6.

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SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART B

DATE

13 Apr 64

Time at sunrise = ⁰⁵⁵⁵ Position at sunrise =

^{12° 55' N 157° 41' W}

Time at sunset = ¹⁹¹⁰ Position at sunset =

^{19° 42' N 155° 09' W}

Miles traveled from 0000 hours to sunrise =

73

Miles traveled from sunrise to sunset =

24

Miles traveled from sunset to 2400 hours =

—

TIME OF FIX TYPE OF FIX LONGITUDE LATITUDE

1.

2.

3.

4.

5.

6.

DATE

20 Apr 64

Time at sunrise = ¹²⁵⁰ Position at sunrise =

^{12° 43' N 157° 21' W}

Time at sunset = ¹⁸⁴⁰ Position at sunset =

^{19° 42' N 155° 09' W}

Miles traveled from 0000 hours to sunrise =

—

Miles traveled from sunrise to sunset =

6

Miles traveled from sunset to 2400 hours =

57

TIME OF FIX TYPE OF FIX LONGITUDE LATITUDE

1.

2.

3.

4.

5.

6.

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3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS

AT SEA SURVEY CHART B

DATE

21 Apr 64

Time at sunrise = ⁰⁵⁵⁷ Position at sunrise = $21^{\circ}13'N$ $154^{\circ}21'W$
Time at sunset = ¹⁸⁴⁰ Position at sunset = $23^{\circ}20'N$ $155^{\circ}58'W$
Miles traveled from 0000 hours to sunrise = 51
Miles traveled from sunrise to sunset = 138
Miles traveled from sunset to 2400 hours = 49

TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.			
2.			
3.			
4.			
5.			
6.			

DATE

22 Apr 64

Time at sunrise = ⁰⁵⁴¹ Position at sunrise = $23^{\circ}38'N$ $157^{\circ}14'W$
Time at sunset = ¹⁸²⁸ Position at sunset = $22^{\circ}27'N$ $158^{\circ}58'W$
Miles traveled from 0000 hours to sunrise = 58
Miles traveled from sunrise to sunset = 137
Miles traveled from sunset to 2400 hours = 52

TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.			
2.			
3.			
4.			
5.			
6.			

SI-MNH-955b
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS

AT SEA SURVEY CHART B

DATE 23 Apr 64

Time at sunrise = ⁰⁵⁴⁴ Position at sunrise = 20° 34' N 151° 58' W
Time at sunset = ¹⁸²⁴ Position at sunset = 19° 42' N 151° 22' W
Miles traveled from 0000 hours to sunrise = 87
Miles traveled from sunrise to sunset = 135
Miles traveled from sunset to 2400 hours = 85

	TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.				
2.				
3.				
4.				
5.				
6.				

DATE 24 Apr 64

Time at sunrise = ⁰⁵⁴³ Position at sunrise = 17° 10' N 151° 29' W
Time at sunset = ¹⁸¹⁷ Position at sunset = 14° 42' N 151° 31' W
Miles traveled from 0000 hours to sunrise = 57
Miles traveled from sunrise to sunset = 138
Miles traveled from sunset to 2400 hours = 84

	TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.				
2.				
3.				
4.				
5.				
6.				

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3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART B

DATE

25 April 64

Time at sunrise = ⁰⁵⁴² Position at sunrise =

12° 57' N 151° 34' W

Time at sunset = ¹⁸¹⁷ Position at sunset =

13° 25' N 150° 52' W

Miles traveled from 0000 hours to sunrise =

57

Miles traveled from sunrise to sunset =

57

Miles traveled from sunset to 2400 hours =

48

TIME OF FIX TYPE OF FIX LONGITUDE LATITUDE

1.

2.

3.

4.

5.

6.

DATE

26 April 64

Time at sunrise = ⁰⁵⁴⁰ Position at sunrise =

13° 53' N 149° 51' W

Time at sunset = ¹⁸³¹ Position at sunset =

14° 20' N 149° 02' W

Miles traveled from 0000 hours to sunrise =

57

Miles traveled from sunrise to sunset =

122

Miles traveled from sunset to 2400 hours =

53

TIME OF FIX TYPE OF FIX LONGITUDE LATITUDE

1.

2.

3.

4.

5.

6.

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SMITHSONIAN INSTITUTION
DIVISION OF BIRDS

AT SEA SURVEY CHART B

DATE 27 Apr 64

Time at sunrise = ⁰⁵³⁴ Position at sunrise = $11^{\circ}40'N$ $148^{\circ}04'W$
Time at sunset = ¹⁸⁵⁷ Position at sunset = $13^{\circ}25'N$ $147^{\circ}55'W$
Miles traveled from 0000 hours to sunrise = 47
Miles traveled from sunrise to sunset = 115
Miles traveled from sunset to 2400 hours = 55

TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.			
2.			
3.			
4.			
5.			
6.			

DATE 28 Apr 64

Time at sunrise = ⁰⁵³⁰ Position at sunrise = $15^{\circ}25'N$ $148^{\circ}02'W$
Time at sunset = ¹⁸¹¹ Position at sunset = $17^{\circ}30'N$ $148^{\circ}01'W$
Miles traveled from 0000 hours to sunrise = 55
Miles traveled from sunrise to sunset = 125
Miles traveled from sunset to 2400 hours = 50

TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.			
2.			
3.			
4.			
5.			
6.			

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SMITHSONIAN INSTITUTION
DIVISION OF BIRDS

AT SEA SURVEY CHART B

DATE 29 Apr 64

Time at sunrise = ⁰⁵²⁶ Position at sunrise = 19° 05' N 147° 58' W
Time at sunset = ¹⁸¹⁶ Position at sunset = 21° 19' N 147° 59' W
Miles traveled from 0000 hours to sunrise = 45
Miles traveled from sunrise to sunset = 134
Miles traveled from sunset to 2400 hours = 41

	TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.				
2.				
3.				
4.				
5.				
6.				

DATE 30 Apr 64

Time at sunrise = ⁰⁵²⁰ Position at sunrise = 22° 45' N 148° 01' W
Time at sunset = ¹⁸²¹ Position at sunset = 24° 50' N 148° 00' W
Miles traveled from 0000 hours to sunrise = 45
Miles traveled from sunrise to sunset = 125
Miles traveled from sunset to 2400 hours = 43

	TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.				
2.				
3.				
4.				
5.				
6.				

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SMITHSONIAN INSTITUTION
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AT SEA SURVEY CHART B

DATE 1 May 64

Time at sunrise = ⁰⁵¹⁶ Position at sunrise = 26° 24' N 148° 00' W
Time at sunset = ¹⁸³¹ Position at sunset = 25° 20' N 150° 19' W
Miles traveled from 0000 hours to sunrise = 51
Miles traveled from sunrise to sunset = 144
Miles traveled from sunset to 2400 hours = 46

	TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.				
2.				
3.				
4.				
5.				
6.				

DATE 2 May 64

Time at sunrise = ⁰⁵³² Position at sunrise = 25° 00' N 152° 15' W
Time at sunset = ¹⁸⁴⁶ Position at sunset = 24° 59' N 154° 50' W
Miles traveled from 0000 hours to sunrise = 72
Miles traveled from sunrise to sunset = 155
Miles traveled from sunset to 2400 hours = 64

	TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.				
2.				
3.				
4.				
5.				
6.				

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3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS

AT SEA SURVEY CHART B

DATE

3 May 64

Time at sunrise = ⁰⁷⁵⁰ Position at sunrise = 25° 05' N 157° 00' W

Time at sunset = ¹²⁵⁸ Position at sunset = 27° 29' N 157° 00' W

Miles traveled from 0000 hours to sunrise = 66

Miles traveled from sunrise to sunset = 91

Miles traveled from sunset to 2400 hours = 44

TIME OF FIX TYPE OF FIX LONGITUDE LATITUDE

1.

2.

3.

4.

5.

6.

DATE

4 May 64

Time at sunrise = ⁰⁷⁵⁵ Position at sunrise = 27° 55' N 157° 02' W

Time at sunset = ¹¹³⁰ Position at sunset = 21° 6' N 157° 48' W

Miles traveled from 0000 hours to sunrise = 40

Miles traveled from sunrise to sunset = 62

Miles traveled from sunset to 2400 hours =

TIME OF FIX TYPE OF FIX LONGITUDE LATITUDE

1.

2.

3.

4.

5.

6.

SI-MNH-955c
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART C

DATE 13 Apr 64

TIME	LAT	LONG	PRES	WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	17 41	157 28														
0200	17 32	157 28														
0300	17 32	157 28														
0400	17 32	157 28														
0500	17 32	157 28														
0600	17 32	157 28														
0700	17 32	157 28														
0800	17 32	157 28	03		25	1016.2	23.5	19	96	6		110-5-12	24.4	27	110	S-11
0900	17 32	157 28														
1000	17 32	157 28														
1100	17 32	157 28														
1200	17 32	157 28														
1300	17 42	157 28														
1400	17 35	157 21	02		10	1015.5	25.1	19	84	7		110-5-12	24.5	21	110	S-11
1500	17 30	157 21														
1600	17 27	157 21														
1700	17 14	157 21														
1800	17 01	157 21														
1900	16 48	157 21														
2000	16 36	157 21	00		10	1015.1	24.2	20	77	8		100-5-12	24.5	20	70	S-11
2100	16 30	157 21														
2200	16 26	157 21														
2300	16 23	157 21														
2400	16 23	157 21														

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

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3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART C

DATE 14 Apr 64

TIME	LAT	LONG	PRES	WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	15 24	157 41														
0200	15 41	157 11	00		10	1011.2	24.0	20	78	7		110-14	24.2	12	110	1-11
0300	15 39	157 51														
0400	15 37	157 51														
0500	15 36	157 41														
0600	14 51	157 21														
0700	14 56	157 20														
0800	14 32	157 23	01		25	1012.4	25.6	21	76	2		080-0.5	24.5	12	110	1-11
0900	14 30	157 23														
1000	14 17	157 23														
1100	14 03	157 23														
1200	13 51	157 23														
1300	13 38	157 23														
1400	13 26	157 23	01		25	1014.9	25.2	21	75	2		090-0.5	25.5	12	110	1-11
1500	13 14	157 23														
1600	13 02	157 23														
1700	12 50	157 23														
1800	12 37	157 23														
1900	12 43	157 20														
2000	12 30	157 01	00		25	1012.2	25.4	22	81	2		070-0.5	23.5	16	70	1-11
2100	12 25	157 01														
2200	12 12	157 01														
2300	11 58	157 01														
2400	11 47	157 00														

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MI. EG;
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

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SMITHSONIAN INSTITUTION

DIVISION OF BIRDS

AT SEA SURVEY CHART C

DATE 15 Apr 64

TIME	LAT	LONG	PRES WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	11 35	152 00													
0200	11 32	152 00	00	25	1012.0	25.2	23	87	2		90-5-5	26.0	18	70	200
0300	11 32	152 07													
0400	11 33	152 14													
0500	11 31	152 18													
0600	11 31	152 20													
0700	11 32	152 22													
0800	11 32	152 11	03	10	1011.4	25.0	23	83	3		7-5-7	26.0	20	70	200
0900	11 32	152 10													
1000	11 33	152 05													
1100	11 32	152 05													
1200	11 31	152 07													
1300	11 31	152 07													
1400	11 31	152 14	01	25	1010.5	25.7	23	79	2		70-5-7	26.0	17	70	200
1500	11 31	152 07													
1600		4 5													
1700		4 4													
1800	11 30	152 00													
1900	11 30	152 22													
2000	11 28	152 12	00	25	1012.4	25.2	23	82	6		70-5-7	26.0	18	70	200
2100	11 27	152 05													
2200	11 27	152 00													
2300	11 27	152 00													
2400	11 27	152 00													

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;
 WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

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SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART C

DATE 16 Apr 64

TIME	LAT	LONG	PRES	WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	11 54	154 00														
0200	12 08	154 00	1012.0		10	1012.0	26.1	22	78	6		30-5-10	24	24	80	NW
0300	12 17	154 00														
0400	12 27	154 00														
0500	12 37	154 00														
0600	12 47	154 00														
0700	12 56	154 00														
0800	13 07	154 00	1012.9		10	1012.9	24.8	22	84	7		20-5-5	24.5	24	80	NW
0900	13 17	154 00														
1000	13 26	154 00														
1100	13 35	154 00														
1200	13 44	154 00														
1300	13 54	154 00														
1400	14 03	154 00	1012.9		10	1012.9	25.6	22	80	7		10-5-7	25.0	21	70	NW
1500	14 12	154 00														
1600	14 21	154 00														
1700	14 30	154 00														
1800	14 39	154 00														
1900	14 48	154 00														
2000	14 57	154 00	1015.0		10	1015.0	24.7	21	78	7		10-5-7	24.9	20	100	NW
2100	15 06	154 00														
2200	15 15	154 00														
2300	15 24	154 00														
2400	15 33	154 00														

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

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SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART C

DATE 17 Apr 64

TIME	LAT	LONG	PRES	WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	15 48	154 00														
0200	15 49	154 00	02		10	1015.0	23.2	20	77	6		40-5-5	23.7	26	90	N-11
0300	15 53	154 00														
0400	15 59	154 00														
0500	16 07	154 00														
0600	16 15	154 00														
0700	16 23	154 00														
0800	16 27	154 00	02		10	1015.1	23.2	20	82	7		60-5-7	23.8	26	80	N-11
0900	16 31	154 00														
1000	16 35	154 00														
1100	16 39	154 00														
1200	16 43	154 00														
1300	16 47	154 00														
1400	16 51	154 00	02		25	1015.9	23.6	18	71	0		50-5-7	23.7	26	80	N-11
1500	16 55	154 00														
1600	17 03	154 00														
1700	17 11	154 00														
1800	17 19	154 00														
1900	17 27	154 00														
2000	17 35	154 00	02		25	1016.5	22.9	17	78	0		50-5-7	23.4	26	80	N-11
2100	17 43	154 00														
2200	17 51	154 00														
2300	17 59	154 00														
2400	18 07	154 00														

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

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SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART C

DATE 20 Apr 64

TIME	LAT	LONG	PRES	WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100																
0200																
0300																
0400																
0500																
0600																
0700																
0800																
0900																
1000																
1100																
1200																
1300																
1400																
1500																
1600																
1700																
1800	14° 55'	174° 58'														
1900	14 55	174 58														
2000	14 57	174 58														
2100	14 58	174 58														
2200	14 58	174 58														
2300	14 58	174 58														
2400	14 58	174 58														

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

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SMITHSONIAN INSTITUTION

DIVISION OF BIRDS

AT SEA SURVEY CHART C

DATE 21 Apr 64

TIME	LAT	LONG	PRES	WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	22 30	154 00														
0200	22 30	154 30	30			1017.0	27.0	76	88			1000 3/	25.7	17	190	
0300	22 38	154 00														
0400	22 30	154 30														
0500	21 30	154 30														
0600	21 42	154 31														
0700	21 34	154 31														
0800	21 37	154 31	30		2.5	1021.0	23.4	77	77	6		1000 3/	25.4	30	20	V-1
0900	21 51	154 31														
1000	22 00	154 31														
1100	22 24	154 31														
1200	22 18	154 32														
1300	22 29	154 31														
1400	22 30	154 31	30		2.5	1021.0	23.1	77	77	6		1000 3/	25.4	30	20	V-1
1500	22 30	154 31														
1600	22 01	153 58														
1700	22 18	153 31														
1800	22 25	153 31														
1900	22 37	153 31														
2000	22 37	153 31	30		2.5	1021.0	23.1	77	77	6		1000 3/	25.4	30	20	V-1
2100	22 30	153 46														
2200	22 30	153 46														
2300	22 30	153 46														
2400	22 30	153 46														

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;
 WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

SI-MNH-955c
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART C

DATE 22 Apr 64

TIME	LAT	LONG	PRES	WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	23 27	152 31														
0200	23 27	152 31							77	4		18-6-7		17		
0300	23 27	152 31														
0400	23 27	152 31														
0500	23 27	152 31														
0600	23 27	152 31														
0700	23 27	152 31														
0800	23 27	152 31	11			1008	17		78							
0900	23 27	152 31														
1000	23 27	152 31														
1100	23 27	152 31														
1200	23 27	152 31														
1300	23 27	152 31														
1400	23 27	152 31							73							
1500	23 27	152 31														
1600	23 27	152 31														
1700	23 27	152 31	0													
1800	23 27	152 31														
1900	23 27	152 31														
2000	23 27	152 31							78							
2100	23 27	152 31														
2200	23 27	152 31														
2300	23 27	152 31														
2400	23 27	152 31														

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

SI-MNH-955c
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART C

DATE 23 Dec 64

TIME	LAT	LONG	PRES	WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100																
0200			02		2.5	1016.1	21.4	17	77			8-5-5	23	18	20	S-11
0300																
0400																
0500																
0600																
0700																
0800			03		2.5	1016.1	21.4	17	77			8-5-5	23	18	20	S-11
0900																
1000																
1100																
1200																
1300																
1400			14		2.5	1016.1	21.4	17	77			7-5-7	23.5	18	20	S-11
1500																
1600																
1700																
1800																
1900																
2000			01		2.5	1016.1	21.4	17	77			8-5-5	23.5	18	20	S-11
2100																
2200																
2300																
2400																

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

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SMITHSONIAN INSTITUTION

DIVISION OF BIRDS

AT SEA SURVEY CHART C

DATE 24 Apr 64

TIME	LAT	LONG	PRES	WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100																
0200									78	7						
0300																
0400																
0500																
0600																
0700																
0800									79	3						
0900																
1000																
1100																
1200																
1300																
1400									79							
1500																
1600																
1700																
1800																
1900																
2000									78	3						
2100																
2200																
2300																
2400																

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES; WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

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SMITHSONIAN INSTITUTION

DIVISION OF BIRDS

AT SEA SURVEY CHART C

DATE 25 Nov 64

TIME	LAT	LONG	PRES	WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100																
0200			91		5	1013.6	24.2		95	3		20-3-7	71.0	23	80	20-4
0300																
0400																
0500																
0600																
0700																
0800			92		10	1013.6	24.2		76	4		20-3-7	71.0	23	80	20-4
0900																
1000																
1100																
1200																
1300																
1400					10	1013.6	24.2		78	2		20-3-7	71.0	17	80	20-4
1500																
1600																
1700																
1800																
1900																
2000			92		15	1013.6	24.2		82	1		20-3-7	71.0	18	80	20-4
2100																
2200																
2300																
2400																

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES; WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

SI-MNH-955c
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SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART C

DATE 28 Apr 64

TIME	LAT	LONG	PRES	WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	11 17	150 07														
0200	11 11	150 21			5				80							
0300	11 05	150 35														
0400	11 01	150 49														
0500	10 54	150 58														
0600	10 50	151 12														
0700	10 46	151 26														
0800	10 41	151 40							85							
0900	10 36	151 54														
1000	10 32	152 08														
1100	10 28	152 22														
1200	10 24	152 36														
1300	10 20	152 50														
1400	10 16	153 04			10				78							
1500	10 12	153 18														
1600	10 08	153 32														
1700	10 04	153 46														
1800	10 00	154 00														
1900	09 56	154 14														
2000	09 52	154 28							82							
2100	09 48	154 42														
2200	09 44	154 56														
2300	09 40	155 10														
2400	09 36	155 24														

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

SI-MNH-955c

3-4-64

SMITHSONIAN INSTITUTION

DIVISION OF BIRDS

AT SEA SURVEY CHART C

DATE 27 April

TIME	LAT	LONG	PRES	WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	11 53	178 00														
0200	11 55	178 00	1012		10	1012.2	81.7	72	84	7		10-15-4	28.0	10	9	N-1
0300	11 55	178 00														
0400	11 55	178 00														
0500	11 54	178 00														
0600	11 55	178 00														
0700	11 55	178 00														
0800	11 56	178 00	1012		10	1012.2	81.7	72	82	7		10-15-4	28.0	10	9	N-1
0900	11 57	178 00														
1000	11 58	178 00														
1100	11 59	178 00														
1200	12 00	178 00														
1300	12 05	178 01														
1400	12 07	178 01	1012		10	1012.2	81.7	72	79	2		10-15-4	28.0	10	9	N-1
1500	12 08	178 01														
1600	12 08	178 01														
1700	12 08	178 01														
1800	12 08	178 01														
1900	12 08	178 01														
2000	12 08	178 01	1012		10	1012.2	81.7	72	84	8		10-15-4	28.0	11	9	N-1
2100	12 08	178 01														
2200	12 08	178 01														
2300	12 08	178 01														
2400	12 08	178 01														

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES; WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

DATE 28 Apr 64

TIME	LAT	LONG	PRES WEA	VIS	SLP	DRY B	DEW PT	HUMID%	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	14 33	148 00													
0200	14 45	148 01	25	5	1015.0	23.7	21	84	9		60-10-10	24.8	23	60	N-11
0300	14 57	148 02													
0400	15 08	148 02													
0500	15 20	148 02													
0600	15 31	148 03													
0700	15 42	148 03													
0800	15 52	148 04	81	2	1016.9	23.1	20	82	8		50-10-12	24.1	26	80	N-11
0900	15 58	148 04													
1000	16 00	148 04													
1100	16 11	148 03													
1200	16 22	148 03													
1300	16 34	148 02													
1400	16 45	148 02	02	10	1016.5	23.9	19	74	7		50-7-12	23.6	20	60	N-11
1500	16 56	148 02													
1600	17 07	148 01													
1700	17 19	148 01													
1800	17 30	148 01													
1900	17 32	148 01													
2000	17 39	148 00	01	10	1018.1	22.8	20	84	1		80-9-12	23.2	20	80	N-11
2100	17 45	148 00													
2200	17 57	147 59													
2300	18 08	147 59													
2400	18 20	147 58													

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES; WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

SI-MNH-955
12-5-63

DATE 29 Apr 64

TIME	LAT	LONG	PRES	WEA	VIS	SLP	DRY B	DEW PT	HUMID%	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPEED
0100	18 32	147 57														
0200	18 44	147 58	01		25	1019.7	22.5	17	71	2		80-10-12	22.8	24	80	N-11
0300	18 55	147 58														
0400	19 00	147 58														
0500	19 00	147 58														
0600	19 12	147 59														
0700	19 24	148 00														
0800	19 36	148 00	01		25	1021.1	21.9	18	78	2		70-10-12	22.8	26	70	N-11
0900	19 48	148 01														
1000	20 00	148 02														
1100	20 09	148 01														
1200	20 21	148 00														
1300	20 30	148 00														
1400	20 30	148 00	02		25	1021.9	21.6	18	80	2		70-10-12	22.2	22	80	N-11
1500	20 42	147 59														
1600	20 53	147 58														
1700	21 05	147 59														
1800	21 16	147 59														
1900	21 26	147 59														
2000	21 37	148 00	03		10	1022.8	21.2	18	82	3		70-10-12	22.0	24	80	N-11
2100	21 42	148 00														
2200	21 54	148 00														
2300	22 00	148 00														
2400	22 00	148 00														

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES; WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

SI-MNH-955
12-5-63

SI-MNH-955c
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART C

DATE 30 Apr 64

TIME	LAT	LONG	PRES WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	22 00	148 00													
0200	22 10	148 00	20	5	1023.0	20.5	18	85	9		80-10-12	22.0	28	80	N-11
0300	22 21	148 00													
0400	22 32	148 01													
0500	22 42	148 01													
0600	22 51	148 02													
0700	23 02	148 02													
0800	23 13	148 02	02	10	1024.9	21.4	16	77	7		50-10-12	22.4	23	20	N-11
0900	23 24	148 02													
1000	23 24	148 02													
1100	23 33	148 01													
1200	23 45	148 00													
1300	23 55	148 00													
1400	24 05	148 00	02	10	1024.1	22.7	16	66	8		70-10-12	22.5	20	50	N-11
1500	24 15	148 00													
1600	24 25	148 00													
1700	24 36	148 00													
1800	24 46	148 00													
1900	24 58	148 00													
2000	25 00	148 00	02	10	1025.7	20.3	17	81	8		70-10-12	21.8	20	90	N-11
2100	25 07	148 00													
2200	25 13	148 00													
2300	25 23	148 00													
2400	25 33	148 00													

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

SI-MNH-955c
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART C

DATE 1 May 64

TIME	LAT	LONG	PRES	WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	25 43	148 00														
0200	25 53	148 00	50		5	1025.8	20.4	17	81	7		60-10-12	20.9	23	60	N-11
0300	26 03	148 00														
0400	26 14	148 00														
0500	26 24	148 00														
0600	26 25	148 00														
0700	26 21	148 0.6														
0800	26 16	148 1.7	03		10	1027.2	21.3	15	65	7		60-10-9	20.9	16	80	SW-11
0900	26 16	148 2.8														
1000	26 05	148 3.9														
1100	26 00	148 5.1														
1200	25 55	149 0.3														
1300	25 49	149 1.5														
1400	25 44	149 2.6	01		10	1025.2	25.8	16	56	7		30-10-9	22.1	16	70	SW-11
1500	25 39	149 3.8														
1600	25 34	149 4.9														
1700	25 28	150 0.1														
1800	25 23	150 1.3														
1900	25 18	150 2.4														
2000	25 12	150 3.5	02		10	1024.7	22.4	17	72	7		30-10-9	22.2	16	70	SW-11
2100	25 09	150 4.2														
2200	25 04	150 5.3														
2300	25 00	151 0.3														
2400	25 00	151 0.3														

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

SI-MNH-955c
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART C

DATE 2 May 64

TIME	LAT	LONG	PRES WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	25 00	151 16													
0200	25 00	151 30	03	10	1023.0	22.0	18	78	4		60-10-9	22.1	16	70	W-11
0300	25 00	151 43													
0400	25 00	151 56													
0500	25 00	152 08													
0600	25 00	152 22													
0700	25 00	152 36													
0800	25 00	152 48	02	10	1023.5	22.5	18	76	4		30-9-7	22.4	16	70	W-11
0900	25 00	153 01													
1000	25 00	153 14													
1100	25 00	153 27													
1200	25 00	153 40													
1300	25 00	153 53													
1400	25 00	154 00	01	25	1022.0	25.5	18	67	2		110-9-5	23.3	18	110	W-11
1500	25 00	154 00													
1600	25 00	154 14													
1700	25 00	154 28													
1800	25 00	154 41													
1900	24 59	154 54													
2000	24 59	155 07	02	25	1022.1	23.4	18	72	2		110-9-5	22.8	20	80	W-11
2100	24 59	155 18													
2200	24 59	155 29													
2300	24 59	155 42													
2400	24 59	155 54													

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

SI-MNH-955c
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART C

DATE 3 May 64

TIME	LAT	LONG	PRES	WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	25 05	156 27														
0200	25 05	156 27	32		10	1021.5	77.0	77	81	7		10-15 230	72	10		090
0300	25 05	156 27														
0400	25 05	156 27														
0500	25 05	156 27														
0600	25 05	156 27														
0700	25 05	156 27														
0800	25 05	156 27	30		10	1021.8	77.0	77	82	7		10-15 230	72	10		090
0900	25 05	156 27														
1000	25 05	156 27														
1100	25 05	156 27														
1200	25 05	156 27														
1300	25 05	156 27														
1400	25 05	156 27	30		10	1022.0	77.0	77	80	7		10-15 230	71	10		090
1500	25 05	156 27														
1600	25 05	156 27														
1700	25 05	156 27														
1800	25 05	156 27														
1900	25 05	156 27														
2000	25 05	156 27	32		10	1022.2	77.0	77	82	7		10-15 230	71	10		090
2100	25 05	156 27														
2200	25 05	156 27														
2300	25 05	156 27														
2400	25 05	156 27														

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS



DATE 12 Apr 64
Pg. # 1

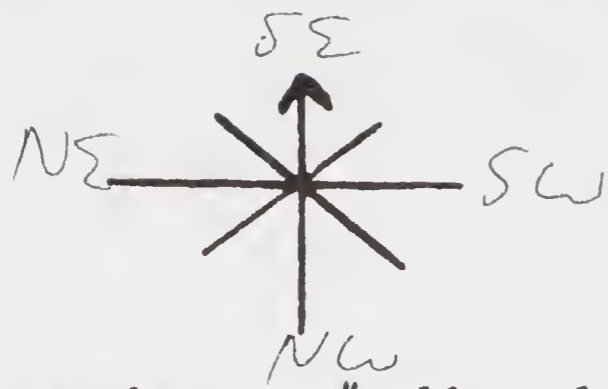
time species # dir. hgt. remarks loc.

1300						
1300	begin observations					
1310	Sooty Tern	10	SE		travelling	
1315	Black-footed Albatross	3				
1320	Wedgetail S	1	SW		light phase	
1315-25	Noddy Tern	52	W		scattered flock travelling	
1325	Sooty Tern	5	E		travelling	
1329	Sooty Tern	4	E			
1330	Black-footed Albatross	4				
1330	Black-footed Albatross	1			small & light-colored	
1344	Noddy Tern	1	E			
1345	Sooty Tern	6	E		travelling	
1350	Sooty Tern	2	E			
1352	"	4	NE			
1404	C. Noddy Tern	1	SW			
1409	Red-footed Booby	1	N		adult	
1413	Sooty Tern	2	S			
1417	Noddy Tern	1	E			
1418	Sooty Tern	1	S			
1421	Sooty Tern	1	NE			
1422	"	1	S			
1437	"	1	NE			
1440	"	1	S			
1440	Noddy Tern	1	S			
1440	Bird ?	1	S			
1441	Pomarine Jaeger	1	SE		following ship	
1443	Wedgetail S	1	SE			
1443	Sooty Tern	1	SE			
1446	P. Jaeger	1	NW		same as 1441	
1455	Wedgetail S.	1	NE		light phase	
1507	Sooty Tern	1	NE			
1530	Sooty Tern	1	NE			
1540	Bulwer's Petrel	1	S			
1545	Wedgetail S.	1	SE			
1555	Red-footed Booby	1	N		adult	

470
38741

005-014-01
355-004-36

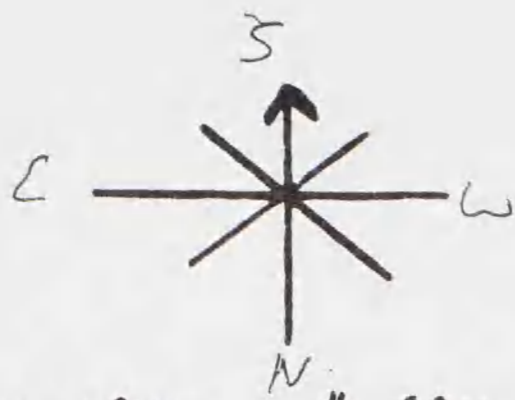
stopped 00



DATE 12 Apr 64
Pg. # 2

time species # dir. hgt. remarks loc.

1556	Sooty Tern	3	NE		
1606	Red-footed Booby	1	NE		adult
1608	Wedgetail	1	NE		light phase
1609	B-F Albatross	1	SE		
1610	Sooty Tern	2	SE		one more joined ship (now 5)
1611	B-F Albatross	3			sitting off starboard (followed ship) now 8
1625	Wedgetail	2	NE		light phase
1629	Shear/petrel	1	NE		all white underwing linings, gray above, light below, white on either upper tail, rump, or lower back; flew very rapidly by.
1633	Sooty tern	1	NE		
1640	Sooty Tern	200			feeding flock NE of ship
	R-F. Booby	40			These are estimated numbers adults
1645	Wedgetail	1	NE		
1649	B-F Albatross	1	SE		
1658	Petrel	1	N		joined ship - now 9
1700	Bird?	1	N		either Sooty Petrel or Bulwer's - all dark + small.
1703	Wedgetail	1	SE		dark phase
1705	"	6	NE		travelling
1705	Sooty Tern	1	NE		
1711	"	1	NW		
1716	Wedgetail	1	NE		
1728	"	1	N		
1728	Bulwer's Petrel	1	E		
1730	Black-footed Albatross	7			
1739	Sooty Tern	3	NE		
1757	Black-footed Albatross	9			
1825	Sooty Tern	2			
1830	banded 2 Black-footed Albatross				757-60901, 02
1845	Wedgetail	1			light phase
1850	end observations				
1900	Red-footed B.	1			perched on wire at top of mast - immature



DATE 13 Apr 64
Pg. # 1

time	species	#	dir.	hgt.	remarks	loc.
0610	begin observations					
0635	Bulwers Petrel	1	SW			
0645	Sooty Tern	15			actively feeding	
0646	Shearwaters/ petrel	1	SE			
0656	Sooty Shear	4	NW	✓		
0704	sooty Shear	3	NW	✓		
0705	Bulwers P.?	1	NW			
0705	wedgetail?	1	NW			
0706	Sooty Tern	2	N			
0708	Sooty Shear	1	N	✓		
0712	sooty Tern	1	N			
0717	Sooty Shear.	1	N	✓		
0721	Wedgetail S.	1	W			
0740	Sooty Tern	4				
0805	sooty Tern	15			feeding flock	
0810	Wedgetail S.	1	S			
0856	Bulwer's	2	S			
0859	wedgetail	1	W			
0917	Frigatebird	1			♀ adult	
0929	sooty Tern	2	E			
1100	Bulwers Petrel	1	S			
1110	Storm Petrel SP	1			seen by watch	
1118	Feeding flock					
	Sooty Tern	50 ± 10			feeding, on shipjack sighted	
	Wedgetail S	12				
1119	Tern SP	1			dark bodied with white head?	
1217	sooty Tern	1	E			
1310	storm Petrel sp	1				
1349	Bulwer's P	1	W			
1355	wedgetail	1	N			
1355	shearwaters	5			travelling	



DATE 13 Apr 64
Pg. # 2

time species # dir. hgt. remarks loc.

1425 ——— — — — started hydro.

1545 ——— — — — ended hydro.

1558 Wedgetail 1 W

1811 Feeding flock

Sooty Tern 30 ± 5

Wedgetail S. 1+

shearwater 2+

petrel

1 all dark

storm petrel sp 1

1830 Bulwer's Petrel 1

1845 Red-footed Booby 1

1850 complete observation

flushed from water - landed again 150 yds from
cruising ship -
with probably land-ship
immature



DATE 14 Apr 64
Pg.# 1

time species # dir. hgt. remarks loc.

0610 begin observation

0638 Bulwer's Petrel 1 NW

0644 Sooty Tern 40 ±10 feeding flock

0652 Newell's Shearwater 1 W

0912 Bulwer's Petrel 1 W

1045 ~~Harcourt's S.P.~~ ^{Leach's} 1 S

1110 Sooty Shearwater 4 E ✓

1247 ~~Harcourt's Storm~~ ^{Leach's} Petrel 1 S

Type B

Bulwer's Petrel 1 S

1345 bird sp 1 N

large - dark upperparts

1400 Masked Booby 1 S

immature dived under water from oblique angle

1537 Newell's Shearwater 1 SE

1545 Masked Booby returns - fishing - diving from 30 ft straight down

1735 Sooty Shear. 4 N ✓ 10 ft + into water - stayed under 2 or 3 seconds

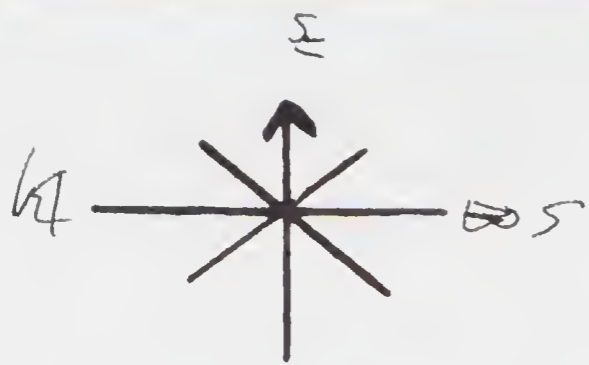
1737 Sooty Shear 4 N ✓

1748 Sooty Shear 4 W ✓

1830 Sooty Shear 4 N ✓

1842 Sooty Shear 1 N ✓

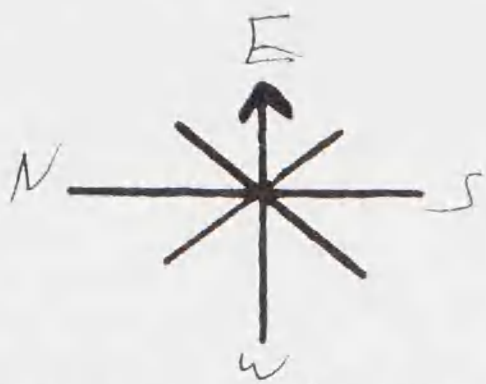
1900 end observation



DATE 15 Apr 64
Pg. # 1

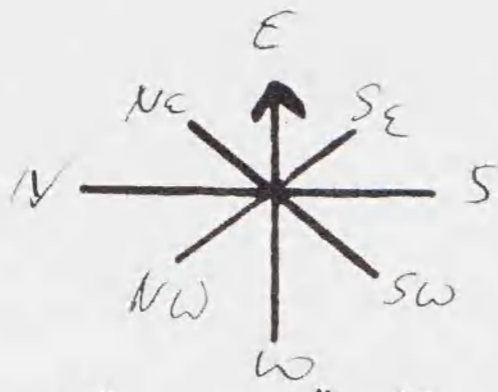
time species # dir. hgt. remarks loc.

0615	begin observations					
0628	Tropic bird sp	2	W	150 ft		
0640	bird sp	1			2 miles off bow	
0647	Wedgetail S.	1	E		light phase	
0650	Harlequin Harlequin S.P.	1			Type B	
0651	Newell's S.	1				
0705	Sooty Shearwater	1	W	✓		
0705	large bird Shearwater?	1	W		size of a booby - large robust bird, more compact than booby - gull like wing beats than glide. white underparts + dark brown upperparts. flying in short arcs, above horizon at top of arcs.	
0710	Sooty Shear	1	W	✓		
0710	Bulwer P.P.	1	W			
0712	Sooty Tern	2	E			
0718	bird.	1	W	50 ft	large bird, dark, flying with constant wing beats	
0725	Bulwer's Petrel	1	E		size of gull or falcon	
0737	Sooty Shear	1	N	✓		
0742	White backed Petrel	1	W			
0752	Bulwer's P.	1	S			
0758	Newell's S.	1	N			
0808	Dark Rumped Petrel	1	S			
0811	Harlequin Harlequin S.P.	1	Σ		Type B	
0823	Sooty Shear	1	W	✓		
0826	Sooty Shear	2	N	✓		
0828	Bulwer's Petrel	1				
0834	Bulwer's Petrel	1				
0858	Sooty Shear	2	N	✓		
0903	Bulwer's P.	1	N			
0907	Bulwer's P.	1	N			
0912	"	1	N			
0922	Sooty Shear	2	S			
0929	Petrel?	1	S			



DATE 15 Apr 64
Pg.# 2

time	species	#	dir.	hgt.	remarks	loc.
0932	Sooty Shear	1	N	✓		
0934	"	1	N	✓		
0959	"	1	N	✓		
1012	"	1	N	✓		
	Leach's Harcourt's Storm Petrel	1	N		Type B	
1014	Sooty Shear	1	N	✓		
1015	Bulwer's	1	N			
1020	Sooty Shear	2	N	✓		
1026	Petrel ?	1	S			
1035	Sooty Shear	1	W	✓		
1050	SP/Bulwer's	1	N			
1051	Sooty Shear	1	N	✓		
1102	Sooty Shear	1	NW	✓		
1103	Leach's Harcourt's S.P.	1	E		Type B	
1116	Shearwater/ Petrel	1				
1117	Wedgetail S	1	S			
1118	Sooty Shear.	1	N	✓		
1152	Puffin White-necked Petrel	1	S			
1212	Sooty Tern	2	E	40ft		
1239	Sooty Shear	2	N	✓		
1248	" "	1	N	✓		
1252	" "	1	N	✓		
1258	Leach's Harcourt's S.P.	1	S		Type B	
1311	Sooty Shear	2	N	✓		
1317	" "	1	N	✓		
1400	Leach's Harcourt's S.P.	1	W		Type B	
1406	"	1	E		Type B	
1412	Sooty Shear	1	W	✓		
1413	Dark-rumped Petrel JFA	1	N			
1414	Bulwer's Bonin Is. Petrel	1	SW			
1445	Shearwater/ Petrel	1	SW			
1446	Shearwater/ Petrel	2	N			



DATE 15 Apr 69
Pg.# 3

time species # dir. hgt. remarks loc.

1516 Sooty Shearwater 1 N ✓

1516 Shearwater/
petrel 1 seen by watch

1524 Bulwer's Petrel 1 N

1536 Shearwater/
petrel 1 N

1546 Sooty Shearwater 1 N ✓

1553 Sooty Shear. 1 N ✓

1554 ~~Leach's~~
~~Harcourt's~~
storm Petrel 1 S Type B

1606 ~~Leach's~~
~~Harcourt's~~
storm Petrel 1 SW Type B

1629 Sooty Shear 1 N ✓

1647 " 1 N ✓

1657 " 1 W ✓

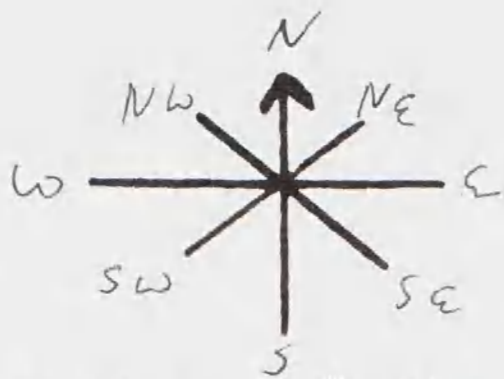
1749 ~~Dark rumped~~
Petrel JFP 1 S

1752 Shearwater/
petrel 1

1804 Sooty Shear 1 N ✓

1811 ~~Leach's~~
~~Harcourt's~~ storm P. 1 SE Type B

1830 and observations



DATE 16 Apr 64
Pg. # 1

time species # dir. hgt. remarks loc.

0605 begin observations

0820 Sooty shear 2 W ✓
Petrel 1

0832 Petrel 1 N

0904 S.P./Bulwer's 1 N

0929 Shear/Petrel 1 N

0955 Flock N

Sooty Tern 50 ±10

Wedgetail 5

~~Shearwater~~ / Petrel 3

Pom. jaeger? / Shearwater / Petrel 3

feeding
light phase
large - at least Wedgetail size, very chunky,
brown on upperparts, underwing surface dark,
breast white, flew in unhurried manner,
several slow flaps then ^{but short} high arcing glide -
same as bird of 15 Apr 64.

1159 Shearwater / Petrel 1

Seen by watch

1345 Bulwer's P. 1 N

1425 Sooty Shearwater 1 N ✓

1512 Sooty Shearwater 1 NW ✓

1520 ~~PTP~~
~~Dark-rumped~~
Petrel 1 SE

shearwater / Petrel 1

1547 Shearwater / Petrel 1 SE

1733 Bulwer's Petrel 1 NW

1734 Sooty Shearwater 1 NW ✓

1738 ~~Dark-rumped~~
Petrel ~~PTP~~ 1 NW

1835 end observations



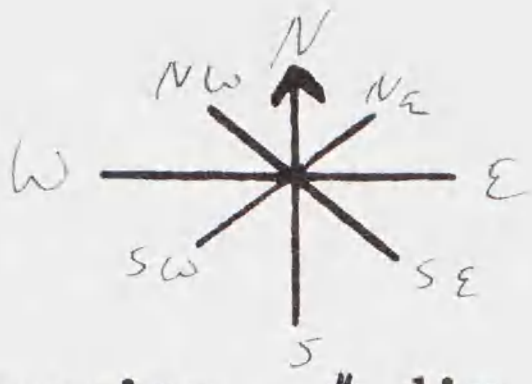
DATE 17 Apr 64
Pg. # 1

time	species	#	dir.	hgt.	remarks	loc.
0555	begin observation					
0625	Shearwater Petrel	1			seen by watch	
0710	Wedgetail S.	2	W			
0737	Petrel	1	W			
0942	Shear/Petrel	1	N			
1006	Sooty Shear	1	N	✓		
1038	Sooty Shear	1	NW	✓		
1040	bird	1	NW	25ft+	larger than Sooty Shear - flying with constant wingbeats - dark upperparts dark underparts -	
1042	Sooty Shear	1	NW	✓	lighter about face + lower abdomen. flew at constant level for few hundred yds, then arced twice + stayed low over water. long tailed	
1225	Sooty Shear	1	NW	✓		
1232	Sooty Shear	1	NW	✓		
1329	Shear/Petrel	1	W			
1358	bird y.	1			seen by watch	
1555	Shearwater? Petrel	1			seen by watch	
1559	Pink-footed Shearwater?	1	NW		same as birds of yesterday - dark upperparts white underparts w/dark underwing - larger than Wedgetail - slow loose flaps interspersed with glide.	
1653	JTP Pink-rumped Petrel	1	NW			
1800	Sooty Shear	2	W	✓		
1806	Shear/Petrel	1	W			
1838	Sooty Shear	1	W	✓		
1850	stop observations					



DATE 18 Apr 64
Pg. # 1

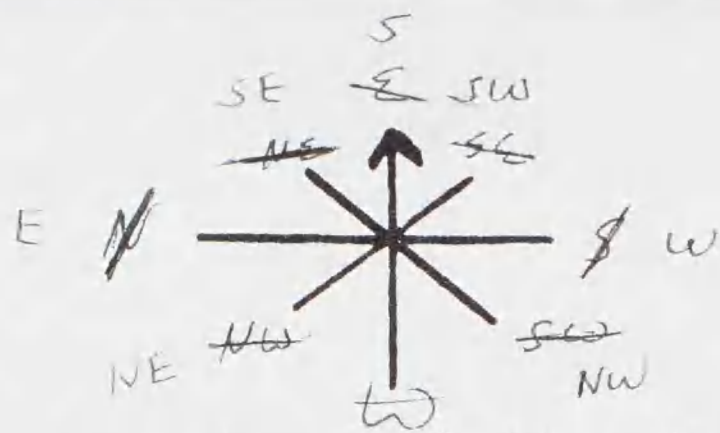
time	species	#	dir.	hgt.	remarks	loc.
0605	begin observations					
0605	Sooty Tern	3				
0615	Sooty Shear	1			✓	
0635	Sooty Tern	2	NW			
0640	Sooty Shear	4	NW		✓	within sight of land - (12 mi)
0645	Sooty Shear	3	NW		✓	
0655	Sooty Shear Shearwater petrel	1	E			seen by watch
0658	Sooty Shear	1	NW		✓	within 7.6 miles of land
0702	Shearwater petrel	1	NW			probably Wedgetail
0711	Tern SP	1	NW			
0730	Hawaiian Noddy	200 ± 25				feeding flock - birds touching water, just for a split second <u>seen by chief mate first</u>
0736	Hawaiian Noddy	200 ± 50				following fishing vessel
0800	end observations					



DATE 21 Apr 64
Pg. # 1

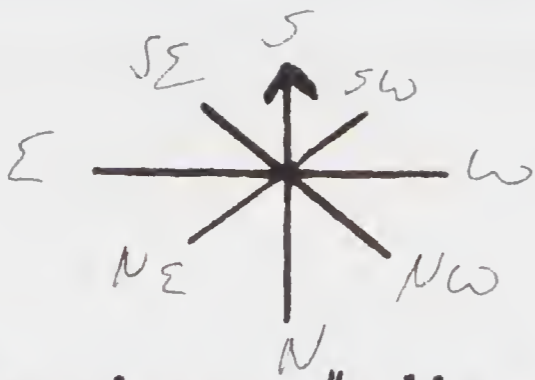
time species # dir. hgt. remarks loc.

0600	begin observations					
0626	Dart-rumped Petrel	1	W			
0640	Sooty Shearwater	1	NW			
0658	Leach's Harcourt's S.P.	1	N		Type B	
0708	Dart-rumped Petrel	1	W			
0709	Leach's Harcourt's S.P.	1	N		Type B	
0718	Leach's Harcourt's S.P.	1	N		Type B	
0820	Wedgetail	1	W		light phase	
0917	Sooty Tern	1	NE			
1158	Leach's Harcourt's S.P.	1	W		Type B in middle of rain squall	
1231	Red-tailed Tropicbird	1	NW		Sitting on water - adult	
1244	Leach's Harcourt's sp	1	W		Type B - edge of rain squall	
1252	Leach's Harcourt's sp	1	N		Snappier wing beats, shorter glides, flew slow	
1426	Leach's Harcourt's S.P.	1	N		Type B	
1532	Black-footed A.	1				
1712	Shearwater Petrel	4	W			
1746	Storm Petrel sp	1				
1830	Blackfoot A.	1			seen by watch	
1900	end obs.					



DATE 22 Apr 64
Pg.# 1

time	species	N #	dir.	hgt.	remarks	loc.
0600	begin observations					
0612	Leach's Harcourt's SP	2	E		type B	
0625	B-E albatras	1			following ship	
0715	S. Storm Petrel?	1	N			
0729	Sooty Tern	6	NW		travelling	
1129	Pink-footed Shearwaters?	1	SE		same as others - larger than wedge tail	
1430	b. bird	1	SW		seen by watch	
1609	Leach's Harcourt's SP	1	S		Type B	
1613	Sooty Tern	1	NE			
1622	Leach's Harcourt's SP	1	S		Type B	
1645	R.T. Tropicbird	1	SW			
1715	Pink-footed Shearwaters?	2	N		same as 1129 - large - dark upper + light breast - shaded underwing	
1720	Storm Petrel sp	1	N		no white patch noted, but observation imperfect	
1754	Leach's Harcourt's SP.	1	SE		Type B	
1801	Sooty Shear.	1	S?		Zigzagging back + forth - silver lining seen	
1802	BWP Bonin IsP.?	1	S		not well seen - size about right, white underparts	
1826	Sooty Shear	1	N			
1930	Black-footed A.	1			followed ship all day	
1840	end observations					



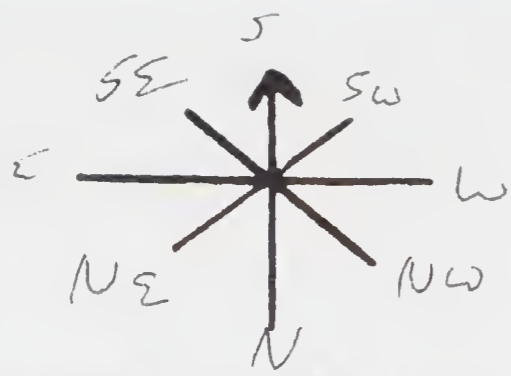
DATE 23 Apr 64
Pg. # 1

time	species	#	dir.	hgt.	remarks	loc.
0610	begin observations					
0610	Black-footed A.	1				
0703	Black-footed Shearwater?	1	NW		150 yds to port - dark upper parts - dark underwing lighter breast with dark band almost circling lower neck. larger than other shearwaters, slow wingbeats	
0721	Black-footed Harcourt's S.P.	1			flight rapid + darting Type B?	
0755	R-T Tropicbird	1			by watch	
0839	Shear/Petrel	1				
0925	Black-footed Harcourt's S.P.	1	N		" "	
0937	Wedgetail	1	W		Type B	
1056	Black-footed Harcourt's S.P.	1	NW		Dark phase	
1129	Pomarine Jaeger	1	NW		all dark - fairly long tail - rowing wingbeats + short glides	
1200	Black-footed A.	1				
1230	Arctic Tern?	1	N		Seen from the rear mainly - all white deeply forked tail; gray back + wings, underparts white; - could not see top of head area or bill.	
1345	Sooty Shear	1	W		✓	
1454	Black-footed Harcourt's S.P.	1	N		Type B	
1530	Storm Petrel sp	1				
1532	Red-tailed Tropicbird	1				
1718	Pomarine Jaeger	1	NW	20+	all dark, same as 1129	
1729	Pomarine Jaeger	2	N		light below - both - adults	
1742	Sooty Shear	2	W		✓	
1802	Sooty Shear	2	NW		✓	
	Black-footed {Jaeger, Pom.}	1	NW		dark above, dark breast sharply contrasting with white abdomen; line separating breast + belly very sharp. Tail long. Like Phoenix Island Petrel, but with longer tail. Larger than Wedgetail flew like a shearwater	



DATE Apr 23, 1964
Pg. # 2

time	species	#	dir.	hgt.	remarks	loc.
1830	Blackfooted A.	1				
1822	Sooty Shear	1	NW	✓		
1827	Petrel	1	NW			
1835	Storm Petrel	1	N			
1840					end observations	



DATE 24 April 64
Pg. # 1

time species # dir. hgt. remarks loc.

0540 begin observations

0652 Storm Petrel 1 N

0703 Wedgetail S. 1 W light phase

0712 Sooty Shearwater 1 NW ✓

0751 ~~Shearwater~~ SP 1 W

0811 Sooty Shear 1 E ✓ Type B

0857 Pet/Shear 1

0910 Petrel 1 NW

0925 Pom. Jaeger 1 NW

0930 Sooty Shear 1 NW ✓ light below

Wedgetail 2 NW

0937 ~~Shearwater~~ SP 2 NW light phase

Shear/Pet 1 NW Type B

0942 Petrel 2 NW

0947 Wedgetail 1 W

1002 Wedgetail 2 NW light phase

1022 ~~Tern SP?~~ 1 NW light phase

or small Jaeger 15 ft larger than Sooty Tern, ^{very} long tail feathers, all grey, underparts same as uppers. lighter about forehead - typical tern wingbeats but too large

1024 Bulwer's Petrel 1 W

1030 ~~Shearwater~~ SP 1 NW Type B

1032 Shearwater 1

Petrel seen by capt.

1037 ~~Shearwater~~ SP 1 NW Type B

1045 Wedgetail S. 1 NW light phase

1102 ~~Shearwater~~ SP 1 N Type B

1115 Wedgetail S. 1 NW

1206 Tern SP 1 NW light phase

1208 ~~Shearwater~~ S.P. 1 NW 200 ft

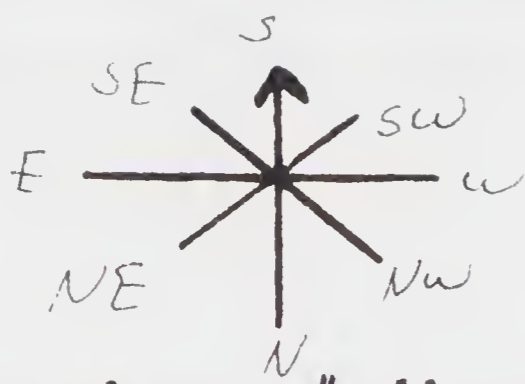
1250 Pom. Jaeger 2 NW one light phase & one dark phase

Sooty Shear 1 NW ✓

Shearwater 1

1250 Arctic Skua 1 N sitting on water

saw black cap on rear of head only, otherwise same as yesterday



DATE Apr. 24, 1964
Pg. # 12



time species # dir. hgt. remarks loc.

1300	Harlequin Harlequin SP	1	N		Type B	
	Pet/Shear/SP	3	S			
1307	SP/Bulwer's	1	NW			
1324	Sooty Shear	1	NW	✓		
1335	Sooty Shear	1	NW	✓		
1405	Sooty Shear	1	NW	✓		
1422	Harlequin Harlequin SP	2	N		Type B	
1432	Sooty Shear	1	NW	✓		
1442	Bulwer's Petrel	1	NW			
1448	Harlequin Harlequin SP	1	NW		B	
1611	Sooty Shear	1	NW	✓		
1716	Harlequin Harlequin SP	2	N		Type B	
1752	White-tailed Tropicbird	1	N	100ft		
1830	end observations					



DATE 25 Apr 64
Pg. # 1

time species N # dir. hgt. remarks loc.

0545	sooty tern, Fairy tern?	1			seen by watch	
0610	begin observations					
0550	P 5 began	1			seen by watch	
0615	Red tailed Tropicbird	1	SE			
0630	Wedgetail S	1	S		dark phase	
0635	Leach's Harcourt's S.P.	1				
0638	Leach's Harcourt's SP	1			> 10 either side of ship	
0652	Wedgetail S.	1			light phase	
0702	Petrel SP.	1	SE			
0717	Shearwater/ petrel	3	N		all light underneath.	
0747	Storm petrel SP	1				
0930	Leach's Harcourt's SP	1	S		seen by watch B	
0946	Wedgetail S.	1			Dark phase	
0947	Shearwater sp	1				
1035	Sooty Tern	1	S	25ft		
1102	Christmas Is Shearwater	1			all dark - slightly smaller than wedgetail - somewhat stiffer wings - 100 yds off starboard	
1104	Leach's Harcourt's S.P.	1			R	
1115	Leach's Harcourt's S.P.	1			B - went right past Wesson oil slick	
1125	Leach's Harcourt's SP	1			passed back + forth over oil slick several times	
1135	Leach's Harcourt's S.P.	2			around oil slick	
1140						
1149	Sooty Shearwater	1	N		2 more over oil slick - one was Type A? probably same as previous 2	
1155	Leach's Harcourt's S.P.	1			passed ship, turned, caught oil trail + followed it back in direction of oil slick - looked very much like Type A	
1205	petrel sp	1			when it turned into wind large all grey shear petrel with light spots on primary under wings  came within 75 ft. not brown but grey - spot shaped  not white Kermadec - possibly Sclander's Petrel	
1213	Leach's Harcourt's S.P.	1				



DATE 25 Apr 64
Pg. # 2

time species # dir. hgt. remarks loc.

1229	Shearwater sp	1	S		B		
1234	Sooty Shear	1	N	✓			
1317	Shearwater sp	3			B		
	Wedgetail	1	W		light phase		
1350	Sooty Shear	1		✓	} by watch		
	Sooty Tern	1					
	Shearwater	1					
1436	Wedgetail	1	E		light phase		
1452	Sooty Shear	1	NW	✓			
1540	Sooty Shear	1	NW	✓			
1558	Wedgetail S	1	S		dark phase		
1604	Brown Noddy	1	S				
1614	Shearwater/ petrel	1	J		large, mostly dark		
1615	White-tailed Tropicbird	1	NE		flushed from water beside ship		
1620	Masred Booby	1	B	30ft	immature		
1622	bird	1			seen by watch		
1637	Wedgetail	1	E		light phase		
	Storm Petrel	1	E				
1640	Storm Petrel	1	NW				
1650	Sooty tern	12			flying high, very dispersed		
	Wedgetail	2	N		light phase		
1705	Sooty Shear	1	NW	✓			
1722	Sooty Shear	1	NW	✓			
1746	Wedgetail S.	1	S		light phase		
1747	Sooty Shear.	2	NW	✓			
1807	Shearwater sp.	1	S		B		
1815	Wedgetail S	2	E		1 dark 1 light		
1845	and obs.						



DATE 26 Apr 64
Pg. # 1

time species # dir. hgt. remarks loc.

0600 begin observations

0610 ~~Dove~~ ^{JFP} ~~shearwater~~ 1 molting - secondary feathers missing - mottled back

0611 Newell's S. 1 flew very close - followed alongside ship for awhile then turned astern, almost falling into water as it hit ship's lee

0630 Shearwater / petrel 3

0635 Sooty Shear 2 ✓

0636 Shearwater / petrel 2

0640 ~~Shearwater~~ ^{Shearwater} 1

0650 Storm Petrel sp 1

0653 Shearwater / petrel 1

0654 Newell's S. 1

0657 Sooty Shear 1 NW ✓

0658 Shearwater / petrel 1

0700 Shearwater / petrel 3

0705 Pin-tailed S. 1 SE dark
Wedgetail S 1 SE

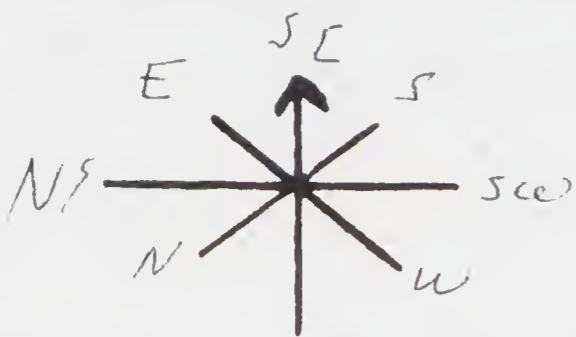
0710 Shearwater / petrel sp 2 SW

0714 Masked Booby 2 SE immature

0752 Wedgetail S 4 SW 3 light phase 1 dark phase

0800 Shearwater / petrel 1 seen by watch

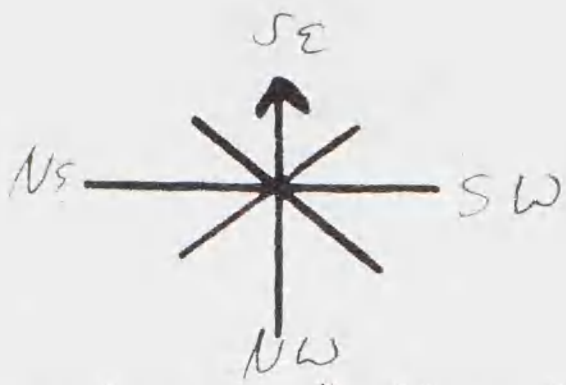
0801 Sooty Shear 1 ✓ W



DATE 26 Apr 64
Pg.# 2

time species ^{NW} # dir. hgt. remarks loc.

0801	Newell S.	1	SE		traveling	
	Wedgetail	3	SE		one dark phase	
	Sooty Shear	1	SE	✓		
0803	Wedgetail	1	SE		dark phase	
0805	Wedgetail	3	SE		dark phase	
0808	Shearwater SP	1	NW			
0809	Sooty Shear	1	NE	✓		
0811	Wedgetail	1	E		dark	
0814	Petrel	1	SW			
0816	Wedgetail	4				
0822	Pink-footed S.?	1	SW		dark underlying linings, white below, dark above, several throat & upper breast may have been somewhat dusky.	
0825	Sooty Shear	1	NW	✓		
0827	Wedgetail	2	NE			
	Sooty Shear	1	NE	✓		
0850	Pet/Shear	1			by watch	
0900	Wedgetail	50 ± 10			feeding flock (Shipjack, - 6 lbs)	
	Dark-rumped Petrel	3				
	Sooty tern	7				
0905	Pom. Jaeger	1	N			
	Wedgetail	3			dark	
0910	Sooty Shear	1	NE	✓		
0913	P.R. Petrel	1	S			
0915	Wedgetail	1	NW		dark	
0919	Wedgetail	1	SE		dark	
0920	W. Noddy P.	1	SW			
	D.R. Petrel	1	SW			
	Wedgetail	2	SW		dark	
0937	Wedgetail	50 ± 60			dark	
	Petrel	1			feeding flock	
	Shearwater	1				
	Sooty tern	125-150				
1017	Bulwer's Petrel	1	SE			
1023	Sooty Shear	2	NW	✓		



DATE 26 Apr 64
Pg. # 3

time	species	#	dir.	hgt.	remarks	loc.
1102	Wedgetail S.	1	SE		light phase	
1110	Leach's Harcourt's SP.	2	SW		B in rain squall	
1128	Sooty Shear.	2	N	✓		
1155	Shearwater	1	SE			
1158	Petrel Leach's Harcourt's SP.	2	S		B	
1203	Storm Petrel/ Bulwer's P.	1	N			
1216	Leach's Harcourt's SP.	1	SW		B	
1219	Sooty Shear	1	N	✓		
1240	Wedgetail	1	SW			
1242	Sooty Shear	1	NE	✓	Dark	
1300	Bulwer's P.	1	NE	✓		
1304	Sooty Shear	1	NE	✓		
1407	Sooty Shear	1	SW	✓		
1444	Wedgetail	1	S		dark	
1453	Sooty Shear	1	N	✓		
1525	Wedgetail	2	SE		dark	
1525	bird	1				
1545	Dark rumped P. JFP	2	SW			
1546	Sooty Shear	2	NW	✓		
1547	Wedgetail S.	1	SE		dark	
1554	Sooty Shear	1	NW	✓		
1612	Leach's Harcourt's SP.	1	SW			
1615	Sooty Shear	2	W	✓		
1617	Sooty Shear	1	W	✓		
1656	Leach's Harcourt's SP.	1	N		B	
1703	Sooty Shear	1	N	✓		
1903	Leach's Harcourt's SP.	1				
1830	end observations					



DATE 27 Apr 67
Pg.# 1

time	species	#	dir.	hgt.	remarks	loc.
0525	begin observations					
0604	Sooty Tern	4			Traveling	
	Wedgetail S.	1			dark phase	
0610	Sooty Tern	15 ± 5			feeding flock	
	shearwater petrel	5				
0618	Sooty Tern	175 ± 50			feeding may have been many more shearwater/petrels	
	shearwater/ petrel	24 70 ± 8				
0640	Harporhynchus Harporhynchus S.P.	1	NW SE		B	
0814	Petrel?	2	N			
1140	Arctic Tern	2	N		light grey back - white tail - black cap, tern wingbeats	
1208	Shearwater/ petrel	1	SE		all dark shearwater/petrel with light spots underwings. came very close but view not good.	
1258	Bird	2			by watch	
1345	Pet/Shear	2			by watch	
1456	J.F.P. D-R. Petrel	1	N			
1555	Sooty Tern	75 ± 25			feeding flock	
1609	R-T. Tropicbird	1	N			
1628	Wedgetail S	1	N		light phase	
1640	Sooty Shear	2	N			✓
1641	Wedgetail S	1	N		light phase	
1757	Harporhynchus Harporhynchus sp	1	W		B	
1821	Sooty Shear	1	N			✓
1825	end observations					



DATE 28 Apr 64
Pg. # 1

time species # dir. hgt. remarks loc.

0540 begin observations

0640 sooty shear 2 NW ✓

0642 ~~Leach's~~
~~Harcourts S.P.~~ 1 NW

0645 sooty shear 1 N ✓

0652 sooty shear 2 NW ✓

0657 sooty shear 3 NW ✓

0658 sooty shear 1 NW ✓

0659 sooty shear 1 NW ✓

0701 ~~Leach's~~
~~Harcourts S.P.~~ 1 NW

0728 sooty shear 3 NW ✓

0754 ~~Leach's~~
~~Harcourts S.P.~~ 1 NW

0759 sooty sha 1 NW ✓

0807 Pom. Jaeger 1 NW

0808 arctic tern 1 NW

0820 ~~Leach's~~
~~Harcourts SP~~ 1 N B

Bird sp. 1 N

0850 ~~Leach's~~
~~Harcourts SP~~ 1 B

0929 Wedgetail 1 ♂ light phase

1054 sooty shear 1 NW ✓

1110 Newell's Shear. 1 N

1115 ~~Leach's~~
~~Harcourts S.P.~~ 1 NE

1146 ~~Leach's~~
~~Harcourts SA~~ 2 W

1152 ~~Leach's~~
~~Harcourts SA~~ 2 W

1157 Wedgetail S. 1 W light

1240 arctic tern 2 W evidently sitting on water ahead of ship.

1242 ~~Leach's~~
~~Harcourts SP~~ 1 NE B

1248 sooty shear 4 NW ✓ all 4 sitting on water in a group before flying

1300 Storm Petrel 1 N

1607 sooty shear 2 NW ✓

1621 sooty tern 6 N

1702 sooty shear 2 NW ✓

1722 ~~Leach's~~
~~Harcourts S.P.~~ 1

1730 Shearwater 1

1733 sooty shear 1 NW ✓





DATE 28 Apr 64
Pg. # 2

time species ⁵ # dir. hgt. remarks loc.

~~17~~ 1750 Sooty Shear 1 NW ✓

1815 end observations

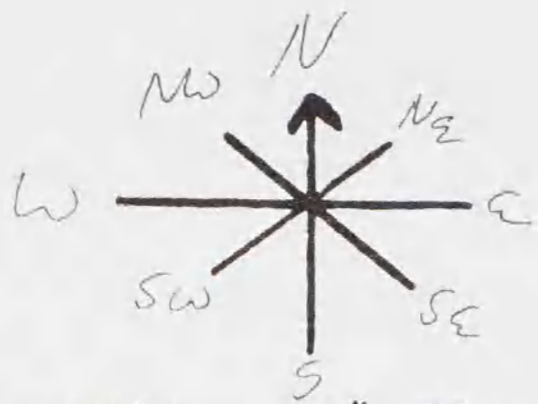


DATE 29 Apr 64

Pg. # 1

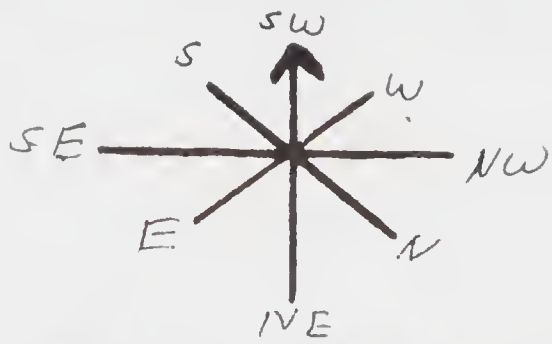
time species # dir. hgt. remarks loc.

0535	Leach's begin observation						
0555	Leach's Harcourt's S.P.	1	W			B	
0702	Shorebird	1	W			seen by watch	
0840	Arctic Tern	1	N			diving into water - on last dive did not reappear above waves.	
0843	Wedgetail	1	N			light phase	
0938	Leach's Harcourt's S.P.	1	W			B	
1007	Leach's Shorebird	2	NW			light color	
1032	Sooty Shear	2	NW	✓			
1106	Leach's Harcourt's S.P.	1	W			B	
1115	Sooty Shear	2	NW	✓			
1130	Sooty Shear	2	NW	✓			
1137	Sooty Shear	1	NW	✓			
1158	Leach's Harcourt's S.P.	1	NW				
1206	Sooty Shear	1	NW	✓			
1210	Sooty Shear	1	NW	✓			
1302	Shearwater	1					
1352	Wedgetail	1	E			light phase	
1422	Shearwater	1	N				
	Leach's Harcourt's S.P.	1	N			B	
1432	SP/Bulwer's	1	E				
1441	Leach's Harcourt's S.P.	1	E				
1455	Wedgetail	1	NW			light phase	
	Stom/Bulwer's	1	E				
1526	SP/Bulwer's	1	W				
1556	Leach's Wedgetail	1				light phase	
1716	Sooty Shear	1	N	✓			
1717	Arctic Tern	2	N				
1751	Shearwater	1	NW				
1800	Wedgetail	1	N			light ph.	
1809	Shearwater S.P./Bulwer's shearwater	1 1 1	W W NE			1820 end obs.	



DATE 30 Apr. 64
Pg. # 1

time	species	#	dir.	hgt.	remarks	loc.
0550	begin observations					
0605	Storm Petrel Bulwer's P	1	W			
0608	Storm Petrel sp	1	W			
0609	Sooty Shear	1	NW	✓		
0610	Leach's Harcourt's S.P.	1	NW			
0841	Leach's Harcourt's sp	1	W			
1046	Leach's Harcourt's S.P.	1	W			
1228	Sooty Shear	1	NW	✓	seen by watch	
1229	Storm Petrel sp Leach's	1	E			
1235	Harcourt's S.P.	2	S			
1242	Pom. Jaeger Leach's	1			sitting in water; did not fly as we passed.	
1300	Harcourt's S.P.	1			B	
1335	Storm Petrel Shear	1	W			
1342	Laysan Albatross	1	N		following ship - adult - followed about 15 minutes	
1349	Sooty Shear	1	W	✓		
1402	Shearwater	1	N			
1407	Sooty Shear	1	W	✓		
1432	Leach's Harcourt's	1	N		B	
	B-F Albatross	1			following ship - light phase	
1507	Leach's Harcourt's S.P.	1	W		B	
1570	Leach's Harcourt's S.P.	1	W			
1607	Leach's Harcourt's S.P.	2	W			
1642	Storm Petrel sp	1	W			
1645	Black-footed A	1			seen by watch	
1900	end observations					



DATE 1 May 64
Pg. # 1

time species # dir. hgt. remarks loc.

time	species	#	dir.	hgt.	remarks	loc.
0520	begin observations					
0520	B-F Albatross	1			- light phase following ship - also seen before early light	
0600	Leach's Harcourt's SP	1	NW		B	
0655	Leach's Harcourt's SP	1	NW		B	
0657	B-F Albatross	1			following ship - now 2 - seen before early light	
0735	Storm Petrel	1	SE		light phase	
0810	Storm Petrel	1			B	
	Petrel/Shearwater	1			by watch	
0850	Shearwater	1			by watch	
0854	Laysan Alba.	1			" "	
0903	Black-footed A.	3			circling ship.	
0915	Black-footed A.	4				
0920	Storm Petrel SP	1				
0925	Leach's Harcourt's SP	2				
0927	Shearwater petrel	1			seen by watch	
0944	Phalarope sp	1	NW		all white underparts	
0950	Pink-footed Shearwater?	1	NW			
1001	Leach's Harcourt's S.P.	1	NW			
1018	Shearwater sp	1	NW		all dark - smaller than Sooty Shear - Newell's size fls like combo between Sooty + Newell's.	
1037	Leach's Harcourt's SP	1	NW		100 yds off stern - good view	
1040	Leach's Harcourt's SP	1	NW			
1049	Leach's Harcourt's SP	1	NW			
1052	Black-footed A	5				
1057	Sooty Shear	1				
1058	Wedgetail S	1	SE		Dark phase	
1102	Shearwater/petrel	1	NW			
1106	Wedgetail S	1	W		dark phase	



DATE 1 May 69
Pg.# 20

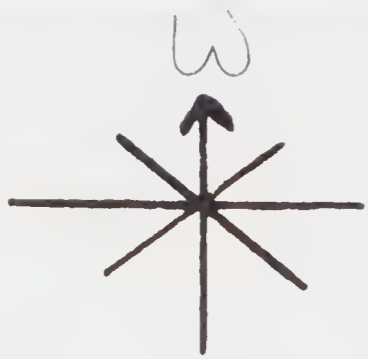
time	species	#	dir.	hgt.	remarks	loc.
1116	Sooty Shear	2	NW	✓		
1129	Shearwater / petrel	1			seen by watch	
1231	Leach's Harcourt's SP	1	NW			
1232	Leach's Harcourt's SP	1	NW			
1238	Arctic Tern	1	NW			
1330	B.F. Albatross	6				
1405	Leach's Harcourt's SP	1	NW			
	Sooty Shear	1	NW	✓		
1410	B.F. Albatross	7				
1423	Sooty Shear	1	NW	✓		
1429	Sooty Shear	1	NW	✓		
1446	Sooty Shear	1	NW	✓		
1453	Leach's Harcourt's SP	1	N			
	Sooty Shear	1	N	✓		
1502	Sooty Shear	1	NW	✓		
1509	Leach's Harcourt's SP	1	NW			
1532	Shear Petrel	1	NW			
1610	Leach's Harcourt's SP	1	NE			
1724	Black-footed A	8				
1725	Sooty Shear	1	NW	✓		
1823	B-F. Albatross	9				
1845	end observations					



DATE 2 May 64
Pg. # 1

time species # dir. hgt. remarks loc.

time	species	#	dir.	hgt.	remarks	loc.
0610	begin observations					
0550	Shearwater SP	1	S		by watch	
0610	B-F albatross	4				
0617	Shear sp.	1	N			
0635	B-F. albatross	5				
0702	Bird sp.	1			by watch	
0706	Shearwater SP	1	N			
0718	Chalangee	1	E		sitting in water, flew when right alongside, winter plumage, patch behind eye, wing stripe	
0720	Shearwater	1	N			
0731	Bird sp.	1	W			
0815	Shearwater SP	1	SW			
0830	Black footed A	6				
0830	Shearwater S.P.	1	N			
0952	Storm Petrel	1			by watch	
1053	Shearwater SP	1	N		B	
1118	Shearwater SP	1	E		B	
1204	Laysan Albatross	1				
1219	B-F. Albatross	8				
1242	Sooty Shear	1	N		✓	
1303	Red-tailed Tropicbird	1	S			
1415	Shearwater G.P.	4			on oil slick just out of range	
1518	Sooty Shear	1	N		✓	
1558	Arctic Tern	1	N			
1700	Newell's Shear	1	E			
1716	Sooty Tern	3	E			
1720	Sooty Tern	2	E			
1727	Sooty Tern	1	E			
1757	Shearwater / Petrel	1	N			
1814	Wedgetail	1			light phase	
1818	Shearwater / Petrel	1	N			
1820	Storm Petrel SP	1	N			
1830	Storm Petrel GP	1				
1837	Shearwater SP	1	N-E		not a Chalangee - larger, clumsier + flying slower.	



DATE 2 May 64
Pg.# 7

time species # dir. hgt. remarks loc.

1845 Black-footed
Albatross

8

1855 end observations



DATE 3 May 64
Pg. # 1

time	species	#	dir.	hgt.	remarks	loc.
0545	Shear/Pet	1			by watch	
0555	begin observations					
0645	Sooty Tern	5	E		travelling scattered	
0648	B-F. Albatross	2				
0652	Newell's Shear	1	E			
0708	Sooty Shear	2	E	✓		
0711	B-F Albatross	3				
0714	Sooty Tern	4	E		travelling scattered	
	Shear/Pet	1	E			
0735	Sooty Shear	2	E	✓		
0805	Sooty Tern	1	E			
0806	wedge tailed	1	E		light phase	
0809	Loach's Harcourt's SP	1	E		B	
0818	Loach's Harcourt's SP	1	W			
0840	Black footed Albatross				banded 757-609 03	
0841	Sooty Tern	1	W			
0907	Sooty Shear	1	N	✓		
0908	Loach's Harcourt's S.P.	1	E			
0911	Sooty Tern	2	N			
0930	Sooty Shear	2	N	✓		
0932	Loach's Harcourt's S.P.	1				
0935	Sooty Tern	1				
0947	Sooty Shear	1	N	✓		
1010	Storm Petrel sp	1				
1011	Sooty Shear	2	N	✓		
1023	Sooty Tern	2	N			
1040	Sooty Shear	1	W	✓		
1043	Loach's Harcourt's SP	1	W	✓		
1044	Sooty Shear	1	W	✓		
1046	Sooty Shear	1	NW	✓		
1051	Sooty Shear	1	NW	✓		
1053	W-T. Tropicbird	1	N	✓		
1103	Sooty Shear	1	E	✓		
1112	Sooty Shear	1	NW	✓		
1146	Sooty Shear	1	E	✓		
1148	Phalarope	1	N	✓		
1152	W-T. Tropicbird	1	S	✓		
1156	Sooty Shear	1	NW	✓		



DATE 3 May 64
Pg. # 2

time species # dir. hgt. remarks loc.

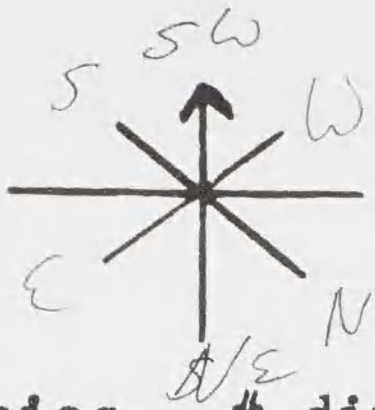
1202	Sooty Shear	2	N	✓		
1206	Sooty Shear	2	N	✓		
1215	Sooty Shear	1	N	✓		
1216	Greater Frigatebird	1	N			
1224	Sooty Shear	1	N	✓		
1228	Sooty Shear	1	N	✓		
1345	Sooty Tern	2	N			
1400	Black-footed Albatross				all departed	
1440	Sooty Shear	1	N	✓		
1502	Sooty Shear	1	N	✓		
1506	Sooty Shear	1	N	✓		
1530	Sooty Tern	175-2002			turned away from oncoming ship	
	Petrel	1			feeding flock	
1537	Sooty Tern	2	N			
1552	Sooty Shear	1	N	✓		
1600	Sooty Tern	140-150			} feeding flock	
	W. Petrel	1				
1602	Fulmar S.P.	1	E			
1607	Sooty Shear	1	N	✓	B	
1618	Sooty Shear	1	N	✓		
1620	Sooty Tern	1	NE			
1623	Newell's Shear	1	SW			
1628	Sooty Shear	1	NE	✓		
1633	Sooty Shear	1	N	✓		
1647	Sooty Tern	2	N			
1650	Sooty Tern	1	N			
	Sooty Shear	4	N	✓	scattered about 200 yard apart	
1653	Sooty Shear	1	N	✓		
1700	Sooty Shear	1	NW	✓		
1706	Sooty Tern	1				
1709	Storm Petrel	1	N			
	Sooty Shear	1	SW	✓		
	Sooty Tern	1	W			
1711	Sooty Shear	1	N	✓		
1713	Sooty Shear	1	NE	✓		
1725	Sooty Shear	1	NE	✓		
1737	Sooty Tern	2	N			



DATE 3 May 64
Pg. # 3

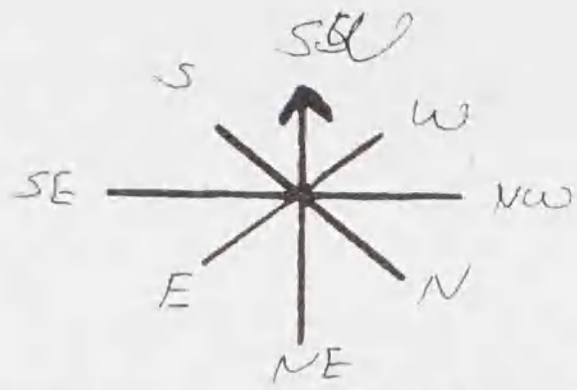
time	species	#	dir.	hgt.	remarks	loc.
1743	Sooty Shear	1	NW	✓		
1744	Sooty Tern	50 45 ± 5			feeding flock	
1745	Sooty Shear	1	NW	✓		
1750	Sooty Shear	1	NW	✓		
1810	Sooty Tern	1	☉			
1812	Sooty Shear	4	NW	✓		
1813	Sooty Tern	1	NW			
1814	Leach's Harcourt's SP.	1	NW			
1815	Sooty Shear	1	NW	✓		
1816	sooty shear	2	NW	✓		
1819	Sooty Shear	1	NW	✓		
1830	"	1	NW	✓		
1847	Sooty Tern	2	N			
1854	Blackfooted A	1	appeared at sunset			
1905	end observations					

63
358
50
471



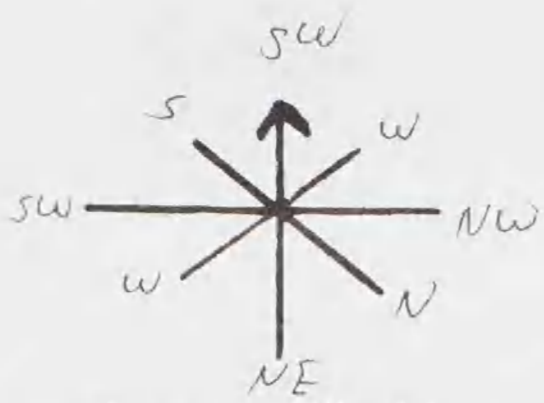
DATE 4 May 64
Pg. # 1

time	species	#	dir.	hgt.	remarks	loc.
0600	begin observations					
0605	Sooty Tern	2	S			
0606	shearwater Phal?	1	N		1 Laysan	
0610	Sooty Tern	75 ± 5	SW		travelling	
0614	Sooty Tern	2	NW			
0615	Sooty Tern	3	E			
0615	Sooty Tern	2	N			
0616	Sooty Tern	3	N			
0626	"	1	N			
0630	"	4	N			
0633	"	2	NE			
0634	"	2	E			
0641	"	1	NE			
0643	"	43	NE		travelling light phase	
	Wedgetails	1	NE			
0647	Sooty Tern	3	NE			
	Noddy Tern	1				
0648	Sooty Tern	5	SW	35 ft.		
0650	Sooty Tern	4				
	Red-footed Booby	1	N			
0655	Sooty Tern	8				
	Noddy Tern	1	NE			
0701	Sooty Tern	3				
	Wedgetails	2			1 dark phase	
	Red-footed Booby	1	NE			
0707	Sooty Tern	5	NE			
	Noddy Tern	1				
0708	Sooty Tern	3	SE			
0710	"	6	NE			
0728	"	2	E			
0734	Wedgetails	1	NE			
0751	Red-footed B.	1	NE			



DATE 4 May 64
Pg. # 2

time	species	#	dir.	hgt.	remarks	loc.
0800	Black-footed A.	1				
0756	Wedgetail	1	SW		light	
	R-F. Booby	1	N			
0802	Com. Noddy	1	NE			
0805	Wedgetail	1	NW		light	
	Sooty Tern	1	NE			
0807	" "	1	NE			
	Com. Noddy	1				
	Com. Noddy	3	NE			
0809	Sooty Tern	3	NE			
	Wedgetail	1	SW			
0811	Sooty Tern	3	NE		flock, travelling	
	Com. Noddy	4	NE			
	Wedgetail	1	NE			
0812	Sooty Tern	1	NE			
0814	Wedgetail	1	SE			
0823	"	1	NE			
0824	"	1	NE			
0826	Sooty Tern	2	W			
	Com. Noddy	1	E			
0828	Sooty Tern	1	NE			
0829	Wedgetail	2	NE			
0832	Wedgetail	8	NE		scattered - all light	
	Sooty Tern	1	N			
0834	" "	1	W			
0835	" "	2	NW			
0838	Wedgetail	3	NE			
0841	"	2	NE			
0844	"	5	NE		scattered - all light	
	Sooty Tern	1	NE			
0846	Wedgetail	1	NE			
0851	"	1	E			
0853	"	3	NE			
0857	"	1	NE			
0859	"	2	NE			
0902	"	1	N			
	Sooty Tern	1	NE			
0904	Wedgetail	2	NE			
0909	"	3	NE			
0911	"	1	NE			
0914	"	4	NE			
0916	Newell's Shear	1	NW			
	Com. Noddy					



DATE 4 May 69
Pg.# 3

time species # dir. hgt. remarks loc.

4	0920	Sooty Tern	40-50	NE	feeding flock	
		Com. Noddy	70-80			
		Wedgetail	60-70			
		Brown Booby	1			
	0927	Wedgetail	10	NE	scattered over 5 minutes	
		Bulwer's P	1	W		
	0931	Wedgetail	2	NE		
		Com. Noddy	1	W		
		Sooty Tern	6	N		
	0932	Sooty Tern	4	NE		
	0934	Brown Booby	1	NE		
		R-F Booby	3	"		
		Wedgetail	5	"		
		Bulwer's P	1	"		
		Sooty tern	3	"		
	0937	Sooty Tern	1	NE		
		Rock Dove	1			
5	0942	R-F. Booby	11	NE	circling ship 10 miles from land flock. feeding feeding	
	0944	R-F Booby	1	NW		
		Sooty Tern	1	NE		
	0947	" "	1	NE		
		Com. Noddy	1	NE		
		Wedgetail	1	NE		
	0950	Sooty Shear	3	NW		✓
		R-F. Booby	1	NW		
		Sooty Tern	5	NE		
	0952	Wedgetail	1	N		
	(Pilot Whales	12-15)				
	1009	Sooty Tern	2	N		
		Sooty Shear	2	NW	✓	within 5 mi. of oahu
	1010	Brown Booby	1			
		Sooty Tern	3	NE		
	1015	Red-footed B	3			
		Sooty Tern	5	NE		
		Brown Booby	1			
	1018	Sooty Tern	10			
		Pomarine Jaeger	1			
		Wedgetail	1			



DATE 4 May 64
Pg. # 4

time	species	#	dir.	hgt.	remarks	loc.
1025	Red-footed B.	1	E E			
	Noddy Tern	1	N E E			
1032	Wedgetails	2	N E E			
	Noddy Tern	2				
1035	Sooty Tern	8	E E			
	Wedgetails.	2	E E			
1037	Sooty Tern	8	E E			
1040	Red-footed B	1	E E			
	Wedgetails	2	E E			
	Noddy Tern	2	E E			
	Sooty Tern	3	E W			
1042	Noddy Tern	5	E E			
	Sooty Tern	2	E E			
1044	Sooty Tern	2	E E			
	sooty Tern	1	W			
1046	Red-footed B.	1	E			
	Sooty Tern	1	W			
1048	Noddy Tern	5	E			
	Sooty Tern	2	E			
	Red-footed B	1	E			
	Wedgetail	4	E			
1052	Noddy Tern	6	E			
	Sooty Tern	3	E			
1055	Sooty Tern	6	E			
	Noddy Tern	2	E			
1056	Black-footed A.	2				
1058	Sooty Tern	5	E			
	"	5	W			
1105	Black-footed A.	2	Following Navy ship			
	Sooty Tern	3	E			
	Sooty Tern	2	W			
	Noddy Tern	1	W			



DATE 4 May 64
Pg. # 5

time species # dir. hgt. remarks loc.

1112 Sooty Tern 2 W

Noddy Tern 1 W

1125 Sooty Tern 1 ~~W~~

1140 end observations

SI-MNH-955c
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART C

DATE 21 May 64

TIME	LAT	LONG	PRES	WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	22 35	157 21														
0200	22 32	157 00	01		10	1010	20	17	77	1		100-8-7	21	70	3-6-11	
0300	22 31	157 05														
0400	22 25	157 00														
0500	21 59	157 00														
0600	21 54	157 03														
0700	21 46	157 11														
0800	21 37	157 2	01		10	1010	20	20	78	3		100-8-7	22	70	3-6-11	
0900	21 32	157 24														
1000	21 27	157 30														
1100	21 18	157 43														
1200	21 17	157 52														
1300																
1400																
1500																
1600																
1700																
1800																
1900																
2000																
2100																
2200																
2300																
2400																

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

SI-MNH-955c
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART C

DATE 12 Aug 64

TIME	LAT	LONG	PRES	WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100																
0200																
0300																
0400																
0500																
0600																
0700																
0800																
0900																
1000																
1100																
1200																
1300	21 17	157 02														
1400	21 15	157 03														
1500	21 08	157 07														
1600	20 57	157 09														
1700	20 41	157 03														
1800	20 26	157 15														
1900	20 26	157 15														
2000	20 26	157 11														
2100	20 22	157 09														
2200	20 11	157 05														
2300	20 01	157 01														
2400	19 50	157 00														

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

SI-MNH-955c

3-4-64

SMITHSONIAN INSTITUTION

DIVISION OF BIRDS

AT SEA SURVEY CHART C

DATE 12 Apr 64

TIME	LAT	LONG	PRES WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	19 41	154 03													
0200	19 52	154 03													
0300	19 57	154 03													
0400	19 58	154 16													
0500	19 58	154 28													
0600	19 59	154 41													
0700	19 59	154 58													
0800	19 48	155 03													
0900	19 45	155 06													
1000															
1100															
1200															
1300															
1400															
1500															
1600															
1700															
1800															
1900															
2000															
2100															
2200															
2300															
2400															

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES; WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

B.C.F. TOWNSEND CROMWELL ^{April} ~~MARCH~~ 1964 CRUISE #3

The April Townsend Cromwell cruise was the third in a series of cruises run by the U. S. Fish and Wildlife Bureau of Commercial Fisheries covering a fixed grid area to the east of the main Hawaiian Islands for the purpose of charting the oceanographic climate of this area.

The April cruise ran from 12 April to 4 May, covering approximately 4500 miles in 21 days. Project personnel, who maintained diurnal bird observations throughout the cruise, included David Bratley and Warren King. Project personnel also assisted in making six-hour weather observations and in taking bathythermograph traces.

An attempt will be made to synthesize oceanographic data with the incidence of bird sightings as soon as the oceanographic data become available.

Warren King

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SPECIES ACCOUNT

Black-footed Albatross

At least 37 birds of this species were seen on the April cruise, a 44% decrease from the 66 seen in March. The large gatherings of birds north of Cahu which were noticed in March were no longer present in April. The birds were mainly distributed north of the main islands while one bird was attracted by the ship to 18°N.

Three of this species were banded.

Laysan Albatross

Only three of this species were seen in April, a 70% decrease from 10 in March. The birds were distributed along the northern end of the grid.

Pink-footed Shearwater ?

Eight individuals, thought to be a form of Puffinus creatopus, were seen in April. On 16 April three of this species were seen in a feeding flock of Wedgetail Shearwaters and Sooty Terns. The birds' large size, darkish underwings and short, hump-backed arcing manner of flight make it distinctive.

Wedgetail Shearwater

Numbers of this species increased 239%, from 104 in March to 352 in April. 127 of these were dark phase, the great majority of which were seen in the southeast corner of the grid area, indicating the utilization of this area by southern populations. Greatest densities were experienced

in this southeast corner and near Oahu. Greatly reduced numbers were seen throughout the remaining area of the grid.

Sooty Shearwater

Only 239 of this species were seen in the grid in April, an 86% decrease from 1684 in March. This decrease is mainly accounted for by the thick wave of birds seen at the northern end of the grid on 3 April during the first cruise. Excluding this day, numbers seen during the two cruises were quite similar. No flocking has been observed in this spring migration. All birds were headed north or northwest. On only one occasion four birds of this species were observed resting on the water. None was observed feeding.

Christmas Island Shearwater

One bird of this species was observed at close range on 25 April at the southern end of the grid.

Newell's Shearwater

Twelve birds of this species were seen in April, a slight decrease from 13 in March. The birds were distributed north of the islands and in the southeast and southwest corners of the grid.

Solander's Petrel ?

A medium-sized smoky-grey petrel with large white patches on the underwing surfaces seen very clearly at a distance of 50 yards 25 April was thought to be this species.

Bonin Island Petrel

This bird is poorly represented in the grid area in the spring, only two individuals having been seen in April and four in March. The two in April were seen at the southern end of the grid.

Dark-rumped Petrel

Seventeen individuals of this species were seen in April, almost twice as many as in March. Four of these were seen near the main Hawaiian Islands, while the remaining thirteen were seen at the southern end of the grid area.

White-necked Petrel

Only three birds of this species were seen in April compared with nine seen in March. All three were seen at the southern end of the area.

Harcourt's Storm Petrel

Numbers of this species increased 119% from 59 in March to 129 in April. This species was quite evenly distributed throughout the entire grid area. Considering that the numbers of storm petrels seen this month is roughly the same as the numbers of Wedgetail Shearwaters exclusive of flocks, it seems strange that no nesting sites have been located in the Hawaiian Islands.

Several birds of this species were attracted to an oil slick of vegetable oil less than 15 minutes from the time the slick was formed. Presumably fish oil would attract them even better.

Sooty Storm Petrel

On 22 April one bird of this species was observed in the grid area. This species appears to occur uncommonly but possibly regularly in the grid area.

Bulwer's Petrel

Concurrent with the arrival of this species on its northern breeding grounds, an increase in numbers of 367% from six in March to 28 in April was experienced. This species was distributed in the southern and western portions of the grid and adjacent to Oahu where it breeds in fair numbers.

Red-tailed Tropicbird

Numbers of this species diminished to seven, only one-third of the March total of twenty, due possibly to increased domestic responsibilities at this time.

White-tailed Tropicbird

Four individuals of this species were seen in the grid area, a slight increase over the two seen in March. This species appears to occur regularly but in low numbers throughout the grid area in spring.

Blue-faced Booby

Four immature Blue-faced Boobies were observed in the southern portion of the grid in April, indicating a small but regular springtime population in that area.

Brown Booby

Four individuals of this species were seen within ten miles of Oahu on 4 May.

Red-footed Booby

The increase from six birds of this species seen in March to 71 seen in April is explained by two factors. First, a feeding flock of 40 was seen in the company of 200 Sooty Terns on the first day out of Oahu, and, second, 28 birds were seen within sight of Oahu on the last morning. This area was passed during the night on the March cruise.

Great Frigatebird

Only two birds of this species, both along the western edge of the grid area, were seen in April, indicating a very small but possibly regular occurrence in the western portions of the grid area in the spring.

Sooty Tern

Numbers of this species increased 30% from 1261 in March to 1633 in April. The difference can be accounted for by the numbers seen during the last morning of the April cruise to the north of Oahu, the same area having been covered at night in March. Three density centers were found; first, within 100 miles of Oahu, second, along the western side of the grid, and third, in the southeast corner.

Noddy Tern

All 165 Noddy Terns seen during the April cruise were seen within 50 miles of Oahu where there is a large breeding colony.

Hawaiian Noddy Tern

All 420 of this species seen during the April cruise were seen within ten miles of Hilo harbor. This species nests along the rocky cliffs of the coast of the island of Hawaii.

Arctic Tern

Twelve birds of this species were seen in April, all of which were headed north. The birds were either in pairs or alone. On two occasions birds appeared to be flushed from the water by the approaching ship. This species appears to migrate north across the grid area in the spring in small numbers.

Pomarine Jaeger

Numbers of this species decreased 36% from 22 in March to 14 in April. This decrease was accompanied by a dispersal of the species' range away from the islands to a more random and widespread distribution throughout the grid area. Several birds were seen well over 500 miles from nearest land.

Phalarope sp.

Of ten shorebirds seen on the April cruise, a 70% decrease from 33 in March, nine were thought to be phalaropes. It has not yet been possible to identify the species involved. The birds have not yet gotten their breeding plumages. All were headed north. On one occasion a phalarope was seen at fairly close range sitting on the water. The individuals seen in the grid area may be young birds somewhat out of their normal range.

Rock Dove

One bird of this species circled the ship on the last morning of the April cruise while still over ten miles from Oahu.

TABLE I

<u>Date</u>	<u>Minutes of Observation</u>	<u>Miles Covered</u>
12 Apr	346	55
13	754	125
14	744	129
15	732	119
16	736	109
17	753	129
18	185	24
* 19	0	0
* 20	0	0
21	768	138
22	767	137
23	763	105
24	756	138
25	751	57
26	739	122
27	753	115
28	761	125
29	770	134
30	781	125
1 May	795	144
2	794	155
3	788	91
4	325	62
Totals	11561	2338
Average	693.4	111.3

* Ship in Hilo harbor.

TABLE II

<u>Date</u>	<u>Total Birds</u>	<u>Total Sightings</u>	<u>Birds/ Sighting</u>	<u>Total Flocks</u>	<u>Total Birds in Flocks</u>
12 Apr	388	51	7.61	86	319
13	169	32	5.28	5	131
14	55	16	3.44	1	40
15	85	74	1.15	0	0
16	78	14	5.57	1	62
17	20	18	1.11	0	0
18	437	11	39.73	2	420
21	19	16	1.19	0	0
22	23	16	1.44	1	6
23	25	21	1.19	0	0
24	51	36	1.41	0	0
25	70	45	1.56	1	14
26	339	67	5.06	3	242
27	295	17	17.35	4	277
28	53	33	1.61	1	6
29	36	27	1.33	0	0
30	25	21	1.19	0	0
1 May	49	36	1.36	0	0
2	42	29	1.45	0	0
3	470	79	5.95	3	362
<u>4</u>	<u>624</u>	<u>* --</u>	<u>* ---</u>	<u>5</u>	<u>308</u>
Totals					
21	3353	659	105.97	27 33	1868 2187
Average	159.7	32.9	5.30	1.30 1.57	89.0 104.14

* Birds were in a continuous stream, therefore sightings were not counted.

TABLE III

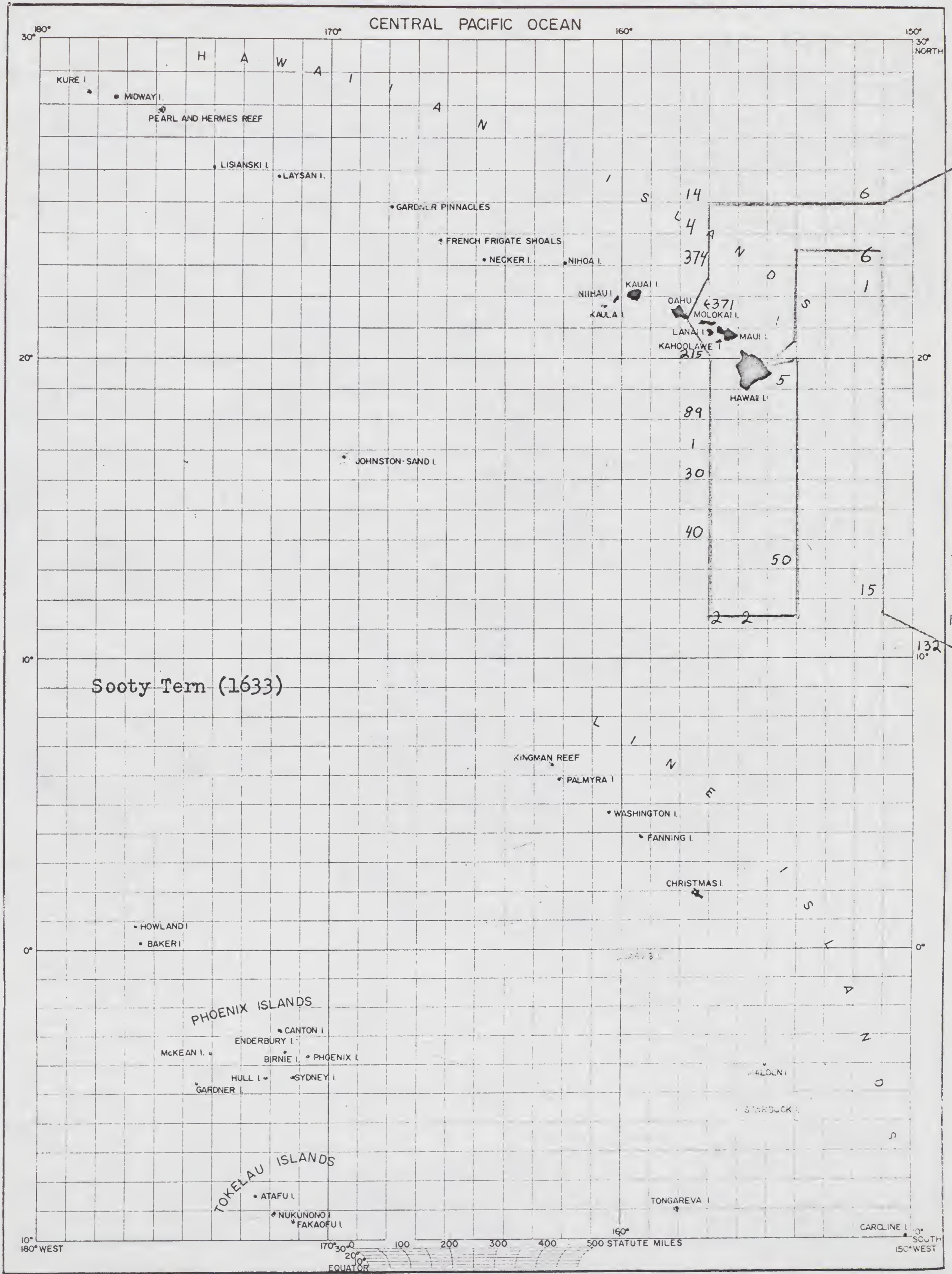
<u>Date</u>	<u>Procellariids</u>	<u>Tropicbirds</u>	<u>Terns</u>	<u>Shorebirds</u>	<u>Boobies</u>	<u>Frigates</u>
12 Apr	31	0	310	1	43	0
13	46	0	121	0	1	1
14	13	0	40	0	1	0
15	76	2	4	0	0	0
16	28	0	50	0	0	0
17	18	0	0	0	0	0
18	11	0	426	0	0	0
21	17	1	1	0	0	0
22	14	1	7	0	0	0
23	17	2	1	0	0	0
24	44	1	2	0	0	0
25	49	2	16	0	1	0
26	202	0	132	0	2	0
27	21	1	271	0	0	0
28	42	0	9	0	0	0
29	30	0	3	3	0	0
30	24	0	0	0	0	0
1 May	46	0	1	2	0	0
2	29	1	8	2	0	0
3	74	2	392	1	0	1
<u>4</u>	<u>149</u>	<u>0</u>	<u>441</u>	<u>1</u>	<u>31</u>	<u>0</u>
Totals						
21	981	13	2235	10	79	2
Average	46.7	0.6	106.4	0.5	3.8	0.1

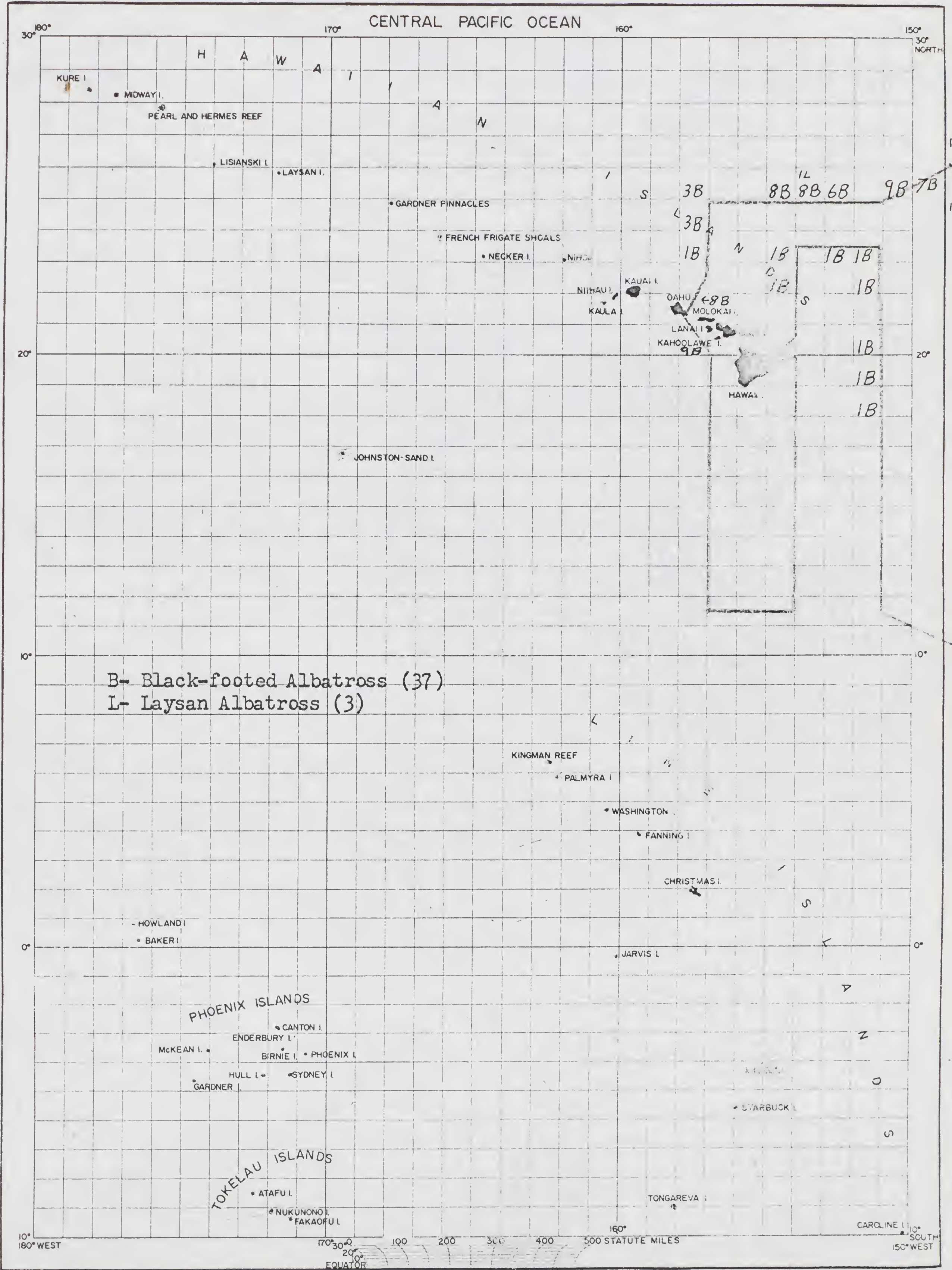
TABLE IV

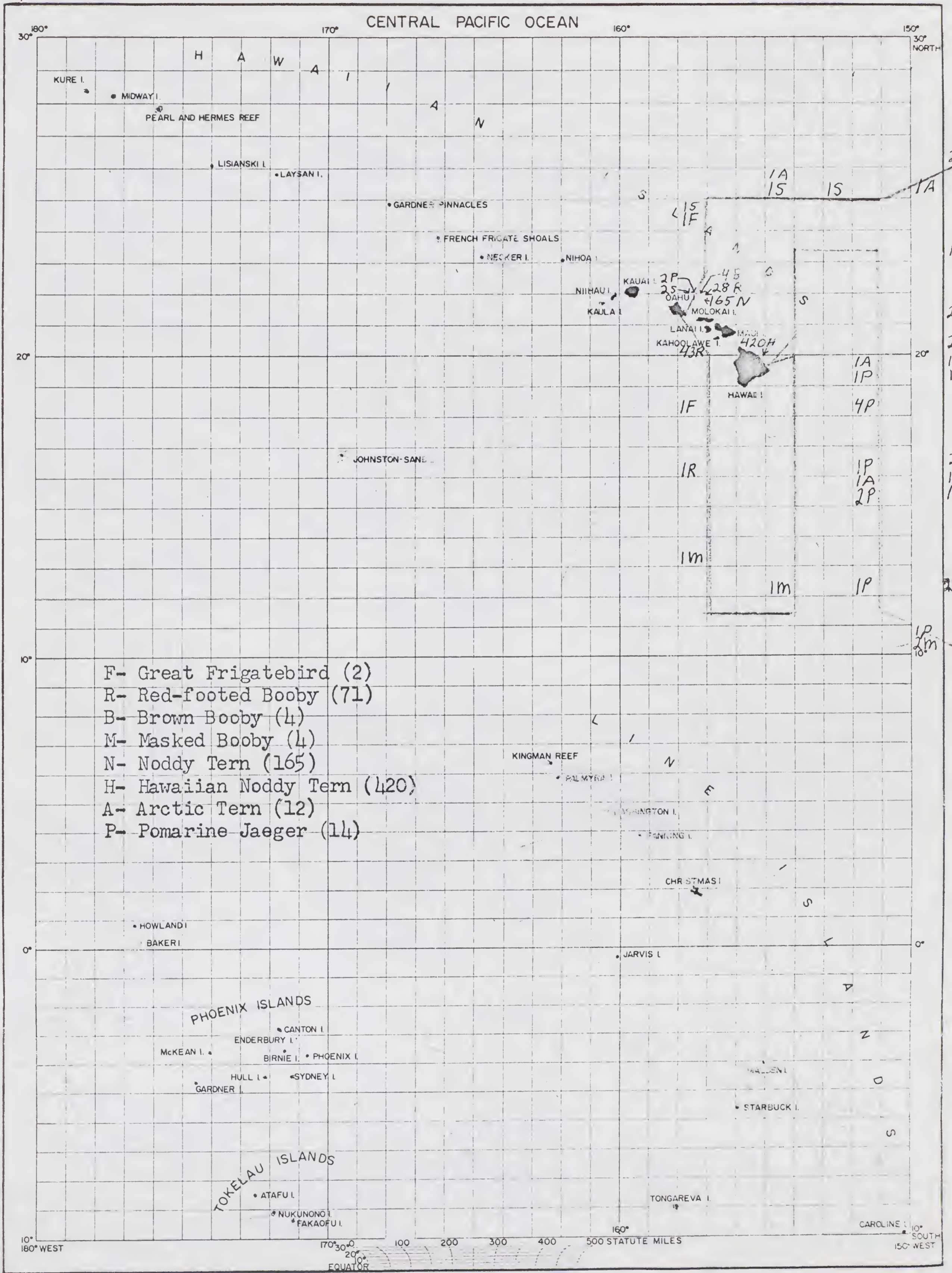
Procellariid Breakdown

<u>Date</u>	<u>Black-footed</u> <u>Albatross</u>	<u>Laysan</u> <u>Albatross</u>	<u>Wedgetail</u> <u>Shearwater</u>	<u>Sooty</u> <u>Shearwater</u>	<u>Bonin Is.</u> <u>Petrel</u>	<u>Storm</u> <u>Petrel</u>	* <u>Misc. S&P</u>	<u>Unident.</u> <u>Procellariid</u>
12 Apr	9	0	18	0	0	0	3	1
13	0	0	19	9	0	3	7	8
14	0	0	0	6	0	2	5	0
15	0	0	2	36	1	10	18	9
16	0	0	6	5	0	0	5	12
17	0	0	2	8	0	0	1	7
18	0	0	0	9	0	0	0	2
21	1	0	1	1	0	8	2	4
22	1	0	0	2	1	7	0	3
23	1	0	1	6	0	6	0	3
24	0	0	8	9	0	14	3	10
25	0	0	12	9	1	18	1	8
26	0	0	132	25	0	12	14	19
27	0	0	3	3	0	2	1	12
28	0	0	2	25	0	13	1	1
29	0	0	5	10	0	10	0	5
30	1	1	0	4	0	16	0	2
1 May	9	1	2	10	0	18	0	6
2	8	1	1	2	0	13	1	3
3	3	0	1	55	0	9	3	3
4	4	0	137	5	0	0	3	0
Totals	37	3	352	239	3	161	68	118
Average	1.8	0.1	16.8	11.4	0.1	7.7	3.2	5.6

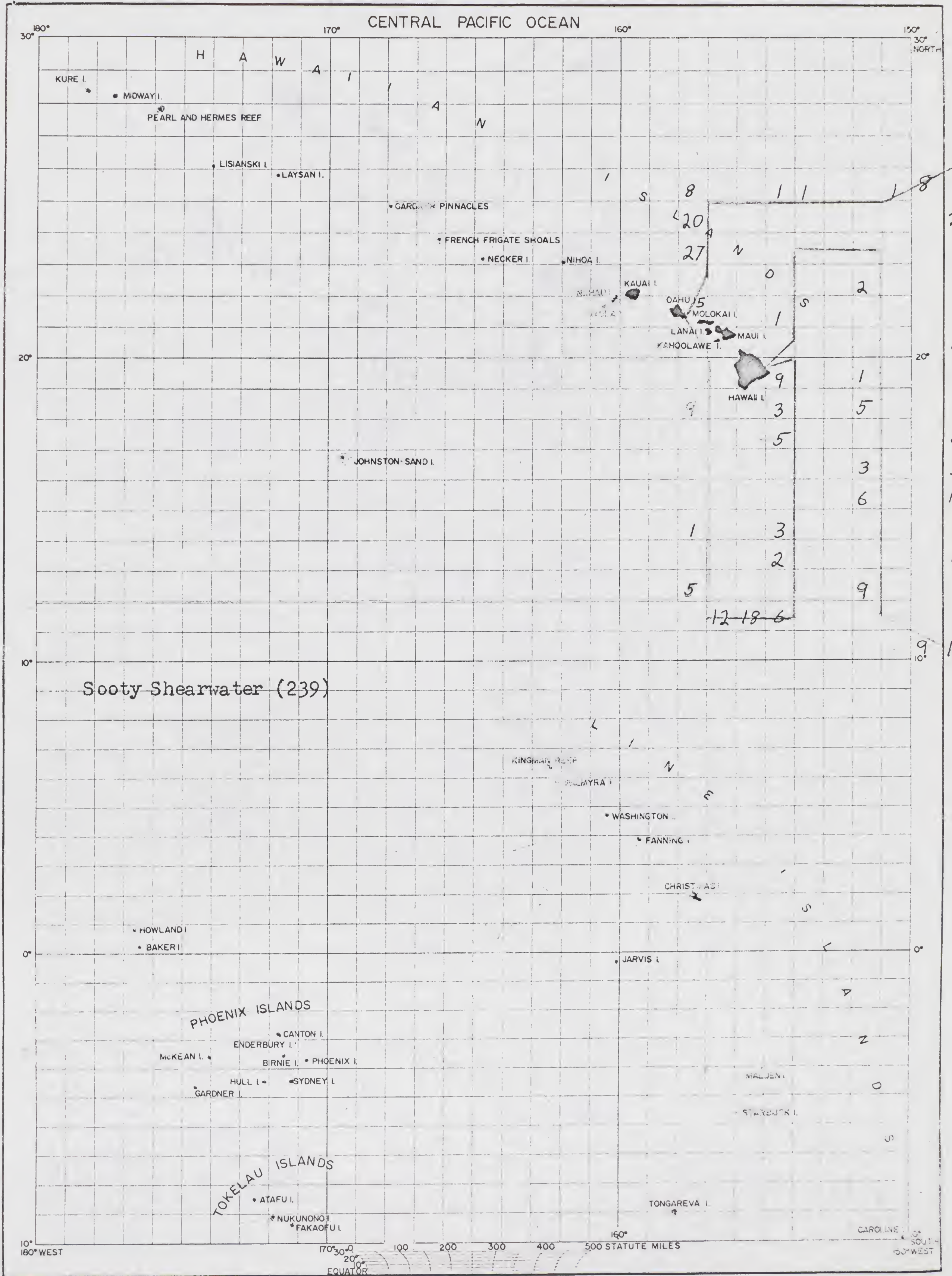
* Includes Christmas Island Shearwater, Newell's Shearwater, Dark-rumped Petrel, White-necked Petrel, and Bulwer's Petrel.

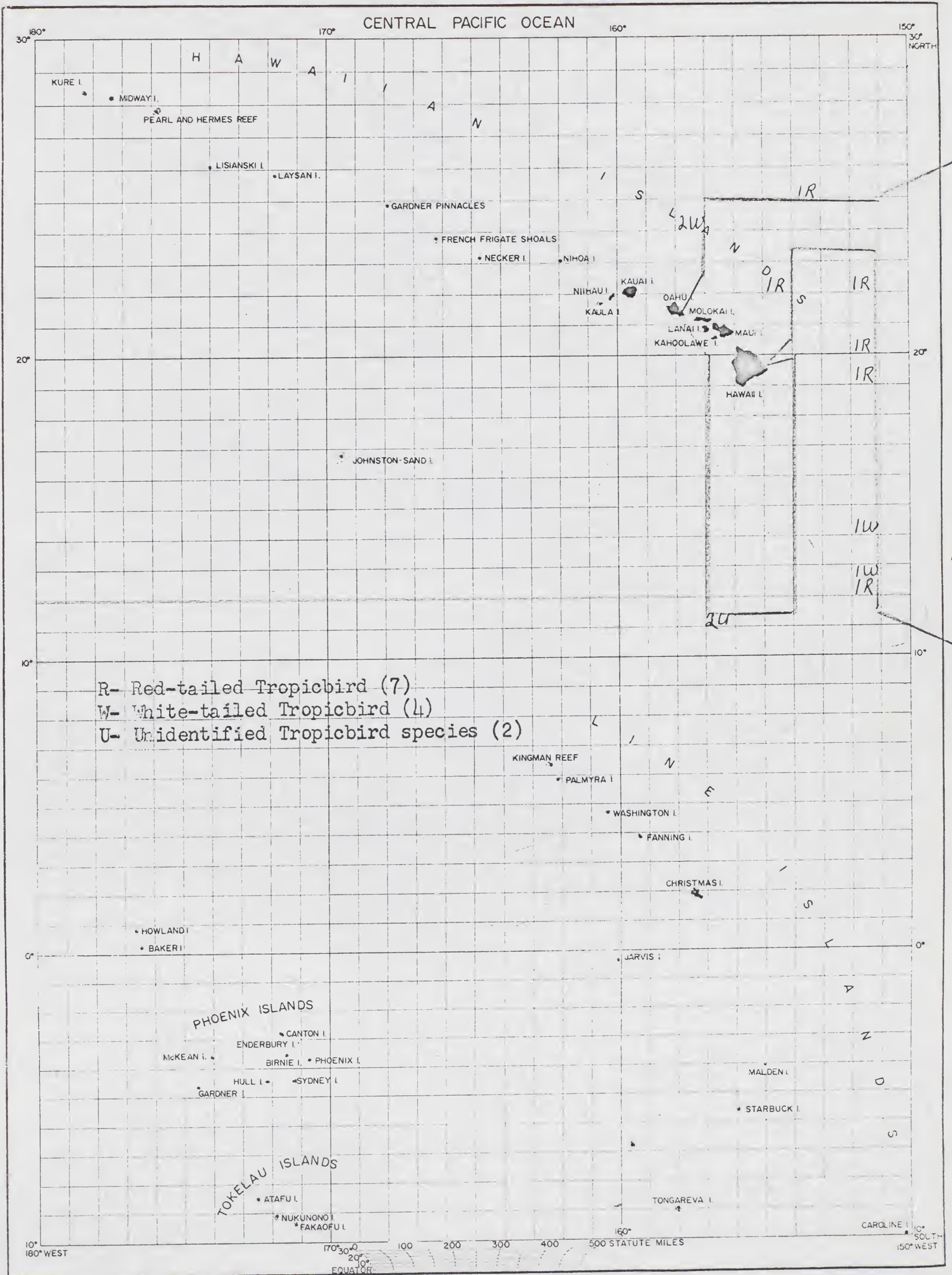


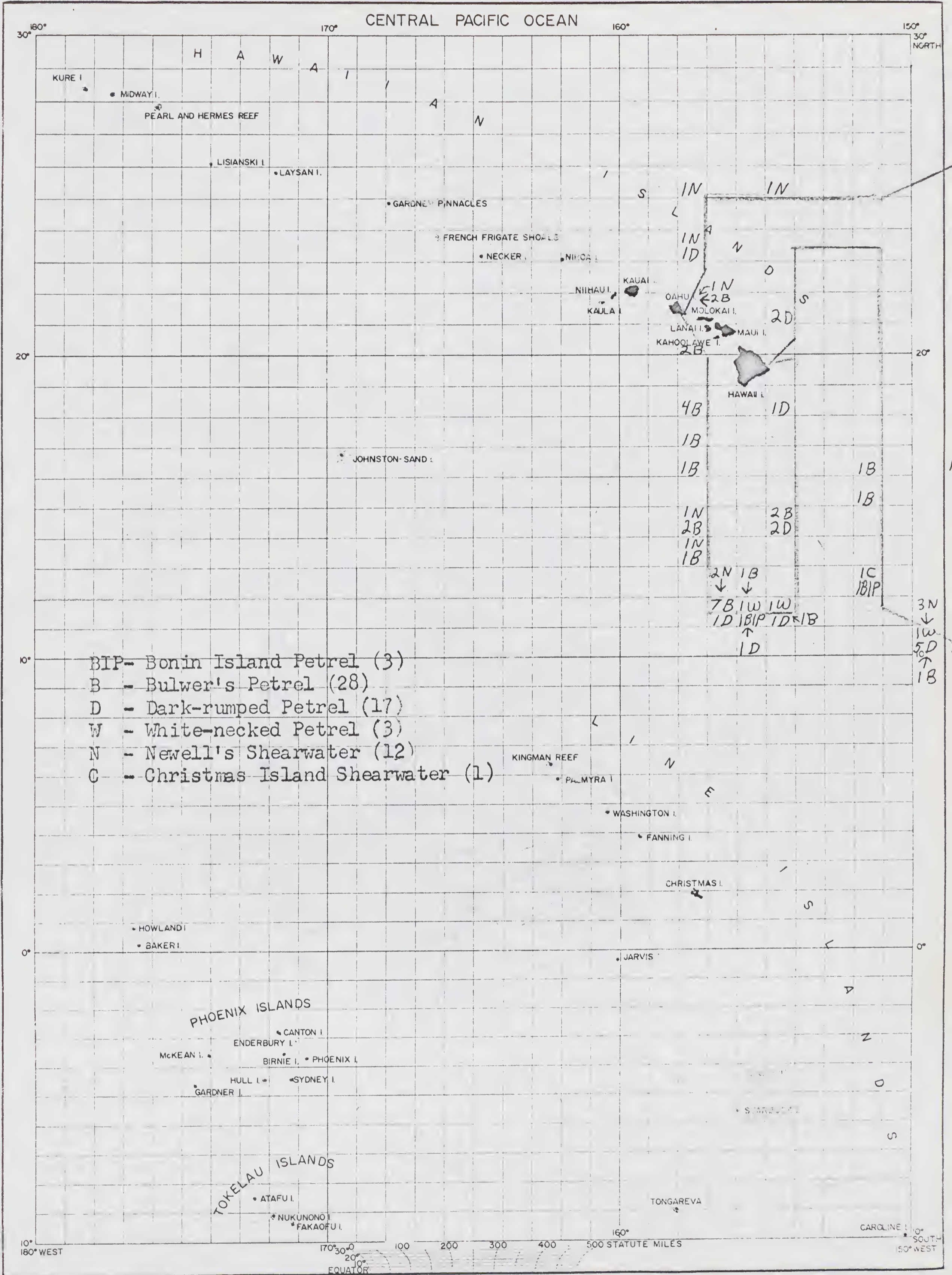




- F- Great Frigatebird (2)
- R- Red-footed Booby (71)
- B- Brown Booby (4)
- M- Masked Booby (4)
- N- Noddy Tern (165)
- H- Hawaiian Noddy Tern (420)
- A- Arctic Tern (12)
- P- Pomarine Jaeger (14)

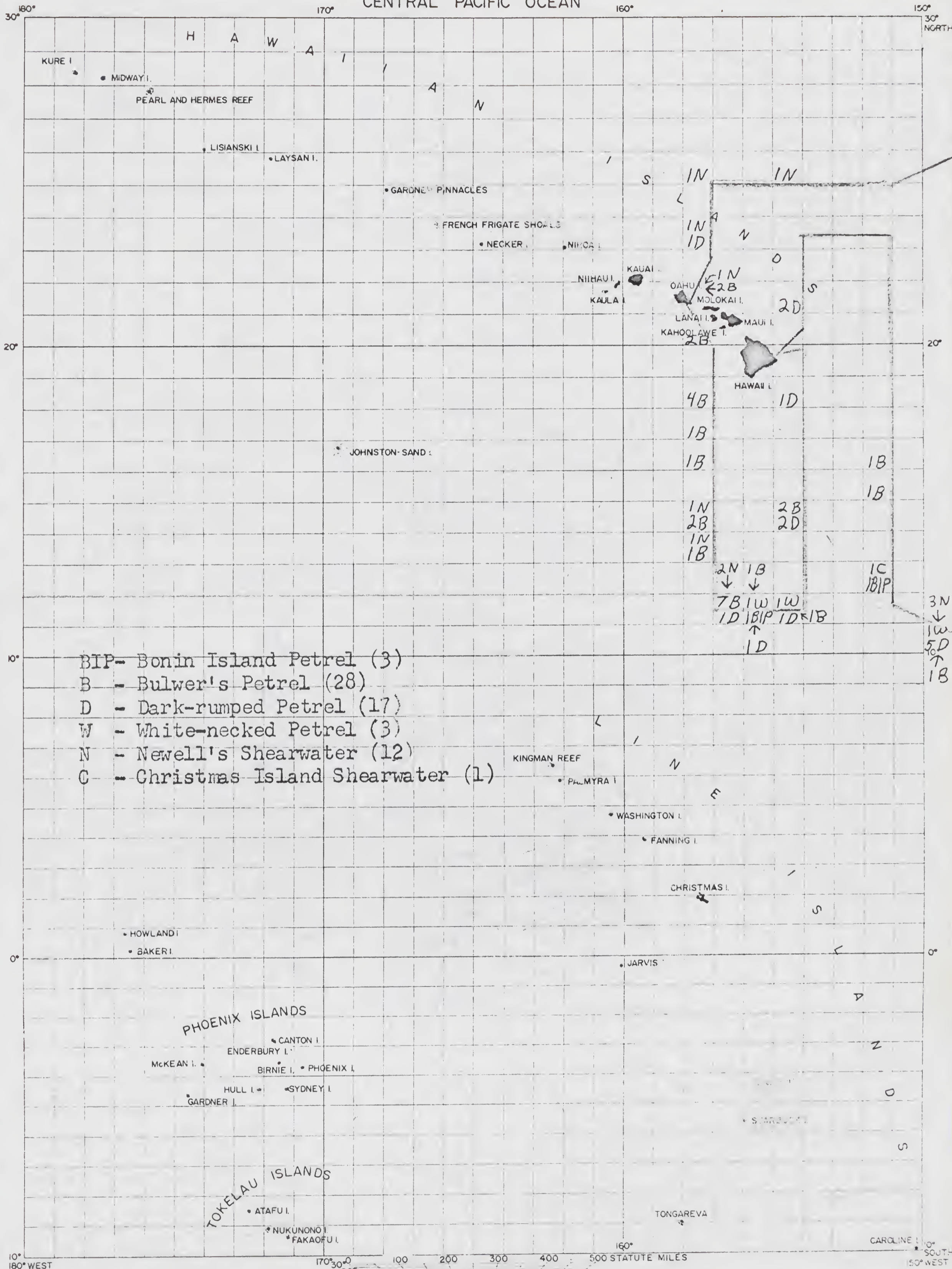






- BIP - Bonin Island Petrel (3)
- B - Bulwer's Petrel (28)
- D - Dark-rumped Petrel (17)
- W - White-necked Petrel (3)
- N - Newell's Shearwater (12)
- C - Christmas Island Shearwater (1)

CENTRAL PACIFIC OCEAN



100 200 300 400 500 STATUTE MILES

EQUATOR

10° SOUTH 150° WEST

APRIL BCF CRUISE

